

ForumIAS

F

Prelims Marathon

April, 2026

*HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT*

FORUMIAS



INDEX

Non-Constitutional Bodies.....	2
Non-Constitutional Bodies.....	5
Non-Constitutional Bodies.....	9
Non-Constitutional Bodies.....	13
Non-Constitutional Bodies.....	18
Rights and Liabilities or the Government and Special Provisions for Some States.....	22
Political Parties.....	26
Political Parties.....	30
Political Parties.....	34
Subjects of Union, State and Concurrent Lists	38
Important Amendments	45
Pathogens and Human Diseases.....	49
Human Diseases.....	52
Diseases and Impacts	56
Biological And Health Sciences.....	59
Biological And Health Sciences Miscellaneous.....	64
Life Science Miscellaneous	68
Biological And Health Sciences Miscellaneous.....	71
Cells and Tissues.....	74
Cells and Tissues - II.....	78
Classification of Organisms and Tissues.....	83
Classification of Organisms-II	89
Classification of Organisms-II	93
Biotechnology	97
Biotechnology-II	101
Biotechnology Applications	106

Non-Constitutional Bodies

1. Consider the following statements regarding the Special Officer for Linguistic Minorities:

1. It is a constitutional office, with the officer being appointed by the President of India.
2. The officer's mandate includes investigating safeguards provided to both religious and linguistic minorities under the Constitution.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Under Article 350B, there shall be a Special Officer for Linguistic Minorities appointed by the President.
 - **Statement 2 is incorrect:** The Special Officer's jurisdiction is restricted solely to linguistic minorities. Matters relating to religious minorities are handled by the National Commission for Minorities (a statutory body).

2. With reference to the Special Officer for Linguistic Minorities, consider the following statements:

1. The original Constitution of India (1950) did not contain provisions for this office.
2. The Constitution specifies a detailed procedure for the removal of the Special Officer, similar to that of a Supreme Court Judge.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Article 350B was inserted by the 7th Constitutional Amendment Act, 1956, following the recommendations of the States Reorganisation Commission.
 - **Statement 2 is incorrect:** The Constitution does not specify the qualifications, tenure, or removal procedure for this officer. He serves during the pleasure of the President.

3. Which of the following statements regarding the Fundamental Rights of minorities in educational matters are correct?

1. Minorities have the right to both establish and administer educational institutions.
2. This right is absolute and cannot be subjected to any government regulation.
3. Reasonable restrictions can be imposed by the State to ensure academic standards and prevent maladministration.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** Under Article 30, all minorities have the right to establish and administer educational institutions.
 - **Statement 2 is incorrect:** No right is absolute. The Supreme Court has consistently held that the State can regulate these institutions to ensure efficiency, transparency, and health/sanitation.
 - **Statement 3 is correct:** Regulations aimed at promoting excellence and preventing financial mismanagement are considered valid.

4. Under the provisions of the Constitution of India, a community can be recognized as a minority based on which of the following criteria?

- (a) Religion only
- (b) Language only
- (c) Both Religion and Language
- (d) Religion, Language, and Caste

Correct Answer: (c)

Explanation:

Article 30(1) specifically mentions: All minorities, whether based on religion or language, shall have the right to establish and administer educational institutions of their choice. The Constitution does not recognize minorities based on race or caste.

5. Which of the following bodies recommended the establishment of the office of the Special Officer for Linguistic Minorities?

- (a) Administrative Reforms Commission
- (b) Swaran Singh Committee
- (c) States Reorganisation Commission
- (d) Sarkaria Commission

Correct Answer: (c)

Explanation:

The States Reorganisation Commission (1953–1955) recommended that safeguards for linguistic minorities should be provided. This led to the 7th Amendment Act, which created Article 350B.

6. What is the correct chronological order of the following Commissions established for the welfare of weaker sections?

1. Kaka Kalelkar Commission
2. Mandal Commission
3. National Commission for Scheduled Castes and Scheduled Tribes (Constitutional status)
4. National Commission for Minorities (Statutory status)

Select the correct order:

- (a) 1 — 2 — 3 — 4
- (b) 2 — 1 — 3 — 4
- (c) 1 — 2 — 4 — 3
- (d) 4 — 3 — 2 — 1

Correct Answer: (a)

Explanation:

1. **Kaka Kalelkar Commission (First OBC Commission):** 1953.
2. **Mandal Commission (Second OBC Commission):** 1979.
3. **National Commission for SCs and STs:** Given constitutional status via the 65th Amendment in 1990.
4. **National Commission for Minorities:** Established as a statutory body in 1992.

7. Regarding the Central Information Commission (CIC), consider the following statements:

1. It consists of a Chief Information Commissioner and not more than ten Information Commissioners.
2. Following the 2019 Amendment, the Chief Information Commissioner holds office for a term of five years.
3. The salary of the Chief Information Commissioner is currently the same as that of the Chief Election Commissioner.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The RTI Act, 2005 limits the number of ICs to ten.
 - **Statement 2 is incorrect:** The RTI (Amendment) Act, 2019 removed the fixed 5-year tenure. The term is now as prescribed by the Central Government (currently 3 years).
 - **Statement 3 is incorrect:** The 2019 Amendment empowered the Central Government to determine salaries. They are no longer automatically equated to Election Commissioners.

8. With reference to the Right to Information Act, consider the following statements:

1. It empowers the Central Government to determine the term of office and service conditions of the CIC and ICs at both Central and State levels.
2. It mandates that the salary of the Central IC must be equivalent to that of an Election Commissioner.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The 2019 amendment shifted the power to determine tenure, salaries, and service conditions of CIC/ICs (Central and State) to the Central Government.
 - **Statement 2 is incorrect:** This was the provision in the original 2005 Act, but it was repealed by the 2019 Amendment.

9. Consider the following statements regarding the Central Information Commission (CIC):

1. It is a statutory body with jurisdiction over all Central Public Authorities.
2. It has the power to impose monetary penalties on officers for malafide denial of information.
3. It can initiate an inquiry on a matter suo moto if there are reasonable grounds.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2, and 3

Correct Answer: (d)

Explanation:

- **Statement 1 is correct:** Established under the RTI Act, 2005.
- **Statement 2 is correct:** Section 20 of the RTI Act allows the Commission to impose a penalty of ₹250 per day (up to ₹25,000).
- **Statement 3 is correct:** The CIC has the power to inquire into any matter suo moto (on its own motion) where it feels there is a failure to comply with the Act.

10. The salaries, allowances, and other service conditions of the State Chief Information Commissioner and State Information Commissioners are determined by:

- (a) The Governor of the State
- (b) The President of India
- (c) The Central Government
- (d) The State Legislature

Correct Answer: (c)

Explanation:

Prior to 2019, these were fixed by the RTI Act. After the RTI (Amendment) Act, 2019, the power to determine the salaries and terms of office for both the Central Information Commission and the State Information Commissions was vested in the Central Government.

Non-Constitutional Bodies

1. Consider the following statements regarding the role of the Central Vigilance Commission (CVC):

1. The CVC advises the Central Government regarding the appointment of the Director of Prosecution in the Central Bureau of Investigation (CBI).
2. The Central Vigilance Commissioner serves as the Chairperson of the committee that recommends the appointment of the Director of the CBI.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 correct:** Under the CVC Act 2003, the Central Government appoints the Director of Prosecution in the CBI on the recommendation of the CVC.
- **Statement 2 incorrect:** The Director of the CBI is recommended by a committee consisting of the Prime Minister (Chair), the Leader of Opposition in Lok Sabha, and the Chief Justice of India (or a SC Judge). The Central Vigilance Commissioner is not a member of the committee that selects the CBI Director (though they are involved in selecting other senior officers in the CBI).

2. With reference to the Central Vigilance Commission, consider the following statements:

1. It is an executive body established under Article 323.
2. The Central Vigilance Commissioner and Vigilance Commissioners are appointed by the President by warrant under his hand and seal.

Which of the statements given above is/are not correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 incorrect:** It is an independent statutory body. It was originally set up by an executive resolution in 1964 and granted statutory status by the CVC Act, 2003.
- **Statement 2 correct:** the members are appointed by the President after recommendation by a committee comprising the PM, the Home Minister, and the Leader of Opposition in the Lok Sabha.

3. Which of the following are statutory functions of the Central Vigilance Commission?

1. Exercising superintendence over the functioning of the Delhi Special Police Establishment (CBI) in all criminal matters.
2. Reviewing the progress of applications pending with competent authorities for sanction of prosecution under the Prevention of Corruption Act, 1988.
3. Conducting inquiries into complaints received under the Public Interest Disclosure and Protection of Informers (PIDPI) Resolution.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 incorrect:** The CVC exercises superintendence over the CBI only insofar as it relates to the investigation of offences under the Prevention of Corruption Act, 1988. It does not have superintendence over the CBI for general crimes (murder, etc.).
- **Statements 2 and 3 correct:** These are direct statutory functions of the Commission to ensure the efficiency of anti-corruption drives and whistle-blower protection.

4. The jurisdiction of the Central Vigilance Commission extends to which of the following categories of officials?

1. All members of the All India Services, regardless of whether they serve the Union or the States.
2. Officers of the rank of Scale V and above in Public Sector Banks.
3. Officers in Grade D and above in the Reserve Bank of India (RBI) and NABARD.
4. Managers and above in General Insurance Companies.

Select the correct answer using the code given below:

- (a) 1, 2 and 3 only
- (b) 2, 3 and 4 only

- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Correct Answer: (b)

Explanation:

- **Statement 1 incorrect:** CVC only has jurisdiction over members of All India Services serving in connection with the affairs of the Union. For those serving the States, the respective State Vigilance Commissions apply.
- **Statements 2, 3, and 4 correct:** They reflect the technical grade-level cut-offs for the CVC's jurisdiction over financial and insurance institutions as per official CVC guidelines.

5. Consider the following statements regarding the Central Bureau of Investigation (CBI):

1. It is an attached office of the Ministry of Home Affairs.
2. The Director of the CBI is provided with a security of tenure of not less than two years.
3. It acts as the National Central Bureau of Interpol in India.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 incorrect:** the CBI functions under the Department of Personnel and Training (DoPT), which is under the Ministry of Personnel, Public Grievances and Pensions.
- **Statement 2 correct:** Ensured by the CVC Act and various SC rulings. This tenure is mandated by the Delhi Special Police Establishment (DSPE) Act, 1946 (as amended in 2003) to ensure functional independence and protection from arbitrary removal.
- **Statement 3 correct:** the CBI coordinates all investigations on behalf of Interpol member countries in India.

6. Consider the following statements regarding the legal powers of the CBI:

1. The CBI can take over the investigation of a case registered in a State only with the consent of the concerned State Government.
2. The Supreme Court and High Courts can order the CBI to investigate a crime anywhere in the country without the consent of the State.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Under the DSPE Act, 1946, the CBI requires the consent of the State to exercise its powers there. However, the Constitutional Courts (SC and HC) have the power to direct the CBI to investigate a case even without State consent to ensure a fair trial and justice (Supreme Court ruling in State of West Bengal vs. Committee for Protection of Democratic Rights).

7. Which of the following is not a function performed by the Central Bureau of Investigation (CBI)?

1. Investigating cases of professional criminals with national and international ramifications.
2. Direct investigation of terror attacks on nuclear installations and bomb blasts across India.
3. Maintenance of crime statistics and dissemination of criminal information.

Select the correct answer using the code given below:

- (a) 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 2 and 3 only

Correct Answer: (a)

Explanation:

Function 2 (Terrorism, bomb blasts, hijacking, nuclear attacks) is the primary mandate of the National Investigation Agency (NIA), which was specifically created for this purpose after the 2008 Mumbai attacks. The CBI focuses on corruption, economic offences, and special crimes. Function 3 is performed by the National Crime Records Bureau (NCRB).

8. With reference to the administrative arrangements between the CBI and State Police forces, consider the following statements:

1. The CBI exclusively investigates cases concerning Central Government employees, even if State employees are involved.
2. The State Police forces take up cases involving Central Government employees if the case is substantially concerned with State affairs.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

Statement 1 incorrect: While the CBI (via DSPE Act, 1946) primarily investigates Central Government employees, the Supreme Court ruled in Jan 2026 that State police/ACBs can legally investigate corruption cases against Central Government employees, and concurrent jurisdiction exists.

Statement 2 correct: While the CBI (under the DSPE Act, 1946) typically handles cases against central employees, this does not exclude the jurisdiction of state police to investigate cognizable offences.

To avoid duplication, an administrative arrangement exists:

- DSPE handles cases substantially concerning Central Govt affairs/employees.
- State Police handles cases substantially concerning State Govt affairs/employees.
- Both agencies have concurrent powers, but generally, the CBI handles employees of Central Public Sector Undertakings and statutory bodies.

9. Consider the following statements regarding the administration of the Delhi Special Police Establishment (CBI):

1. The Director of the CBI is responsible for the administration of the DSPE as its Inspector-General of Police.
2. Since 2003, the superintendence of the DSPE vests in the Central Government for all matters including those under the Prevention of Corruption Act, 1988.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 correct:** the Director of CBI holds the dual role of head of the organization and IG of the DSPE.
- **Statement 2 incorrect:** While the CVC Act of 2003 vested the superintendence of the DSPE in the Central Government for most matters, it specifically carved out an exception for corruption cases. For investigations of offences alleged to have been committed under the Prevention of Corruption Act, 1988, the superintendence vests in the Central Vigilance Commission (CVC), not the Central Government.

10. Consider the following statements regarding the powers of the Central Information Commission (CIC):

1. The CIC has the authority to initiate an inquiry suo moto into any matter if there are reasonable grounds for the same.
2. The Commission has the power to secure compliance with its decisions from the public authority, including awarding compensation to the complainant.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Both statements are correct under the RTI Act, 2005. The CIC is a quasi-judicial body. It can investigate complaints on its own (suo moto) and has various powers to enforce the Act, such as imposing penalties on officials or requiring the public authority to compensate the applicant for any loss suffered.

Non-Constitutional Bodies

1. Consider the following statements regarding the jurisdiction of the Lokpal:

1. Its authority extends to the Council of Ministers, including the Prime Minister of India, with certain subject-matter exclusions.
2. Only institution that are fully financed by the Government of India falls under its investigative purview.
3. Non-Governmental Organizations (NGOs) that receive foreign contributions exceeding a specified limit under FCRA are subject to Lokpal's jurisdiction.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

Under the Lokpal and Lokayuktas Act, 2013, the jurisdiction is broad.

- **Statement 1 correct:** It includes the PM, though investigations into the PM regarding international relations, security, public order, and atomic energy/space are restricted.
- **Statement 2 incorrect:** It covers any body/trust/society established by a Central Act or financed/controlled by the Central Govt.
- **Statement 3 correct:** NGOs receiving foreign aid above ₹10 lakh per year (under FCRA) or receiving govt grants above ₹1 crore are covered.

2. Consider the following statements regarding the Lokpal of India:

1. The salary and service conditions of the Chairperson of the Lokpal are equivalent to those of the Chief Justice of India.
2. The Chairperson and members hold office for a term of three years or until they attain the age of 70 years, whichever is earlier.
3. All administrative expenditures of the Lokpal, including salaries, are "charged" upon the Consolidated Fund of India.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statement 1 correct:** The Chairperson's salary/allowances are same as the CJI; for members, they are same as a Supreme Court Judge.
- **Statement 2 incorrect:** The tenure is strictly 5 years or 70 years of age.
- **Statement 3 correct:** To ensure independence, the expenses are "charged" (not put to vote in Parliament), similar to the Supreme Court or UPSC.

3. With reference to the Lokpal and Lokayukta Act, 2013, consider the following statements:

Statement-I: The Prime Minister is not entirely immune from investigations conducted by the Lokpal.

Statement-II: The Lokpal has the power to proceed *suo-moto* (on its own motion) against any public servant without a formal complaint.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- (b) Both Statement-I and Statement-II are correct but Statement-II is not the correct explanation for Statement-I.
- (c) Statement-I is correct but Statement-II is incorrect.
- (d) Statement-I is incorrect but Statement-II is correct.

Correct Answer: (c)

Explanation:

- **Statement-I correct:** the PM is within jurisdiction.
- **Statement-II incorrect:** Unlike some other bodies, the Lokpal cannot initiate an inquiry *suo-moto*. It can only act on a complaint received from a person.

4. How many of the following functionaries are members of the selection committees for BOTH the National Human Rights Commission (NHRC) and the Lokpal?

1. Union Home Minister
 2. Leader of Opposition in the Lok Sabha
 3. Speaker of the Lok Sabha
 4. Chief Justice of India
- (a) Only one
(b) Only two
(c) Only three
(d) All the four

Correct Answer: (b)

Explanation:

- **Lokpal Selection Committee:** PM (Chair), Speaker (LS), LoP (LS), CJI (or nominee), and an eminent jurist.
- **NHRC Selection Committee:** PM (Chair), Speaker (LS), LoP (LS), LoP (RS), Deputy Chairman (RS), and **Union Home Minister**.
- Only the Speaker of the Lok Sabha and the Leader of Opposition in the Lok Sabha (along with the PM) are common to both committees. The CJI is NOT on the NHRC committee; the Home Minister is NOT on the Lokpal committee.

5. Which of the following institutions have been established to check corruption and misconduct among public servants in India?

1. Central Vigilance Commission (CVC)
2. Lokpal
3. Special Police Establishment (SPE)
4. Central Bureau of Investigation (CBI)

Select the correct answer using the codes given below:

- (a) 2 and 3 only
(b) 1 and 4 only
(c) 3 and 4 only
(d) 1, 2, 3 and 4

Correct Answer: (d)

Explanation: All four are part of the integrity framework. The SPE was the predecessor to the CBI (created via the DSPE Act, 1946). The CVC provides vigilance administration, and the Lokpal acts as the supreme anti-corruption ombudsman.

6. Consider the following statements:

1. The Lokpal Bill was for the first time presented during the fourth Loksabha in 1968 in the Parliament.
2. The NCWRC (2000-2002) in its report recommended that the constitution be amended to incorporate a provision making it obligatory on the state governments to set up the institution of Lokayukta.

Which of the above statements is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (c)

- **Statement 1 is incorrect:** Following the ARC's recommendations, the **Lokpal and Lokayuktas Bill** was introduced for the first time in the **Fourth Lok Sabha in 1968**.
- **Statement 2 is incorrect:** The Commission observed that while some states had established Lokayuktas (starting with Odisha in 1970 and Maharashtra in 1971), there was a lack of uniformity across the country.

7. Which of the following entities/matters are specifically under the purview of the Lokpal?

1. Matters related to a Minister's conduct inside the Parliament (such as voting or statements).
2. All entities receiving donations under the Foreign Contribution Regulation Act (FCRA) above a specified threshold.
3. All Group A, B, C, and D officers of the Central Government.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** Because the Lokpal does not have jurisdiction over anything said or any vote given by a Member of Parliament inside the House (Article 105 protection).
- **Statements 2 and 3 are correct** as per the 2013 Act.

8. Consider the following statements regarding the Lokpal and Lokayukta Act, 2013:

1. The Act mandates that every state must establish the office of Lokayukta within one year of the Act's commencement.
2. The Act grants the Central Government the power to directly appoint the Lokayukta for any state that fails to meet this deadline.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** the Act required states to set up Lokayuktas within one year.
- **Statement 2 is incorrect:** the Central Government cannot appoint a State Lokayukta. The states must pass their own laws and follow their own appointment procedures (though the Act provides a model).

9. Which of the following crimes fall under the investigative jurisdiction of the National Investigation Agency (NIA)?

1. Human trafficking
2. Counterfeit currency or bank notes
3. Cyber-terrorism
4. Offences under the Anti-Hijacking Act

Select the correct answer using the code given below:

- (a) 1 and 3 only
- (b) 2, 3 and 4 only

- (c) 1, 2 and 4 only
(d) 1, 2, 3 and 4

Correct Answer: (d)

Explanation:

The NIA's Scheduled Offences were expanded by the 2019 Amendment. It now includes human trafficking, counterfeit currency, cyber-terrorism, prohibited arms (Arms Act), and crimes related to atomic energy and hijacking.

10. With reference to the NIA (Amendment) Act, 2019, consider the following statements:

1. It empowers the Central Government to direct the NIA to investigate scheduled offences committed outside India, provided they affect Indian citizens or interests.
2. It allows State Governments to designate existing Sessions Courts as "Special Courts" for the trial of offences under the NIA Act.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 correct:** The 2019 amendment gave NIA extra-territorial jurisdiction.
- **Statement 2 incorrect:** To speed up trials, the amendment allowed the Centre and States to designate Sessions Courts as Special Courts, whereas earlier, only specifically established "Special Courts" could hear these cases.

Non-Constitutional Bodies

1. Consider the following statements regarding the Disaster Management (DM) Act, 2005:

1. The Act provides the legal basis for the constitution of both the National Disaster Response Fund (NDRF) and the State Disaster Response Fund (SDRF).
2. The National Executive Committee (NEC), designed to assist the NDMA, is chaired by the Union Home Secretary.
3. The NDMA has the statutory authority to ensure that different Central Ministries integrate disaster prevention measures into their developmental plans.

Which of the statements given above are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Sections 46 and 48 of the DM Act, 2005, mandate the creation of the NDRF and SDRF respectively. While the Finance Commission recommends the funding ratio, the funds are statutory creations of the Act.

Prelims Marathon MCQs Compilation April 2026

- **Statement 2 is incorrect:** The Union Home Minister is the Chairperson of the NDMA, but the Union Home Secretary is the ex-officio Chairperson of the National Executive Committee (NEC).
- **Statement 3 is correct:** One of the core functions of the NDMA under the Act is to lay down guidelines to be followed by different Ministries or Departments of the Central Government for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects.

2. With reference to the Bar Council of India (BCI) and the Advocates Act, 1961, consider the following statements:

1. The Bar Council of India is a statutory body established to maintain professional standards and regulate legal education.
2. The Attorney General of India and the Solicitor General of India serve as ex-officio members of the Council.
3. An appeal against the disciplinary order of a State Bar Council lies directly with the Supreme Court of India.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** It is a statutory body (not constitutional) created under the Advocates Act, 1961.
- **Statement 2 is correct:** These two are the ex-officio members, while others are elected from State Bar Councils.
- **Statement 3 is incorrect:** An appeal against a State Bar Council's disciplinary committee first goes to the Bar Council of India (BCI). An appeal to the Supreme Court is only possible against an order passed by the BCI.

3. With reference to the State Bar Councils under the Advocates Act, 1961, consider the following statements:

1. A person currently in full-time salaried employment is ineligible for enrollment as an advocate.
2. The State Bar Council possesses the statutory power to remove an advocate's name from its roll on grounds of professional misconduct.
3. The elected members of a State Bar Council hold office for a term of five years.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** BCI rules generally prohibit full-time salaried employees from practicing law to maintain the independence of the profession.
- **Statement 2 is correct:** Under Section 35, the disciplinary committee of the State Bar Council can reprimand, suspend, or remove an advocate from the roll.
- **Statement 3 is correct:** The term of office of the elected members of a State Bar Council is 5 years from the date of publication of the election results.

4. Regarding the categories of legal practitioners in the Supreme Court, consider the following statements:

1. A Senior Advocate is prohibited from filing a Vakalatnama or appearing without a junior advocate/Advocate-on-Record.
2. An Advocate-on-Record (AoR) is the only category of legal practitioner authorized to file any matter or document before the Supreme Court.
3. An active Advocate-on-Record can be designated as a Senior Advocate, provided they have 10 years of standing.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

• **Statement 1 is correct:** Under Supreme Court Rules, Senior Advocates cannot file Vakalatnamas, cannot stay in acting matters, and must be assisted by another advocate.

- **Statement 2 is correct:** Only an AoR can file a case or a document in the SC. Other advocates can only plead (argue) upon being instructed by an AoR.
- **Statement 3 is incorrect:** Upon being designated as a Senior Advocate, an advocate must give up their AoR status, as Senior Advocates are restricted from doing on-record filing work.

5. Consider the following statements regarding the Law Commission of India:

1. It is a non-statutory, executive body constituted by the Government of India from time to time.
2. Its primary mandate is to review and recommend the repeal of obsolete laws and suggest legal reforms.
3. The recommendations made by the Law Commission are binding on the Union Cabinet.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

• **Statement 1 is correct:** It is neither a constitutional nor a statutory body. It is an executive body created by a government notification.

- **Statement 2 is correct:** Its main function is legal reform and identifying laws that are no longer needed.
- **Statement 3 is incorrect:** Its reports are advisory. The government may or may not accept the recommendations.

6. Consider the following statements regarding the Delimitation Commission:

1. It is a statutory body appointed by the President of India and works in collaboration with the Election Commission.
2. The orders issued by the Commission have the force of law and cannot be called into question before any court.

3. The Commission was last constituted under the Delimitation Act, 1973.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** It is appointed by the President under a Delimitation Act passed by Parliament.
- **Statement 2 is correct:** Under Article 82, once the orders are laid before the Lok Sabha or Vidhan Sabha, they cannot be modified or challenged in court.
- **Statement 3 is incorrect:** The last full Delimitation Commission was constituted in 2002 (headed by Justice Kuldeep Singh). A specific commission was formed in 2020 for J&K and certain NE states.

7. Match the following Delimitation Commissions with their respective Chairpersons/Features:

List I (Year/Act)	List II (Chairperson/Context)
A. 1952 Commission	1. Justice Kuldeep Singh
B. 2002 Commission	2. Redrawing boundaries of J&K UT
C. 2020 Commission	3. First Delimitation exercise
D. 1973 Commission	4. Justice J.L. Kapur

Select the correct code (A-B-C-D):

- (a) 3-1-2-4
- (b) 4-1-2-3
- (c) 3-2-1-4
- (d) 1-3-4-2

Correct Answer: (a)

Explanation:

Delimitation Commissions have been set up four times: 1952, 1963, 1973, and 2002. The 2020 commission (headed by Justice Ranjana Prakash Desai) was a special exercise for J&K and four North-Eastern states. Justice Kuldeep Singh headed the 2002 commission.

8. With respect to Cooperative Societies under the 97th Amendment Act, consider the following statements:

1. The maximum number of directors in a cooperative society board is limited to 21.
2. The Act mandates a reservation of two seats for women and one seat for SC/STs on the board.
3. In a cooperative society, voting rights are proportional to the share capital contributed by the member.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Article 243ZJ limits the number of directors to 21.
- **Statement 2 is correct:** Reservation for SC/ST (1 seat) and Women (2 seats) is mandatory.
- **Statement 3 is incorrect:** Cooperatives follow the principle of One Member, One Vote regardless of the number of shares held, to ensure democratic control.

9. Consider the following statements regarding the 97th Constitutional Amendment Act, 2011:

1. It made the right to form cooperative societies a Fundamental Right under Article 19.
2. It inserted a new Directive Principle of State Policy (Article 43B) for the promotion of cooperative societies.
3. The subject of 'Cooperative Societies' is placed in the Union List to ensure uniform Central regulation.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 & 2 are correct:** The 97th Amendment added Article 19(1)(c), Article 43B, and Part IXB.
- **Statement 3 is incorrect:** 'Cooperative Societies' is a State Subject (Entry 32, List II). Multi-State Cooperative Societies fall under the Union List, but general cooperatives are under state jurisdiction. (Note: The SC struck down Part IXB as applied to state cooperatives in 2021 due to lack of state ratification, but it remains valid for Multi-State cooperatives).

10. The Representation of the People Act, 1950, provides for which of the following matters?

1. The allocation of seats in the House of the People and State Legislative Assemblies.
2. The preparation of electoral rolls and qualifications of voters.
3. The conduct of elections and adjudication of election disputes.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only

(d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- The 1950 Act deals with the pre-election stage: allocation of seats, delimitation procedure, and registration of voters (electoral rolls).
 - The 1951 Act deals with the actual conduct of elections, qualifications/disqualifications of candidates, corrupt practices, and election disputes.

Non-Constitutional Bodies

1. Which one of the following statements is not correct regarding the Official Languages Act, 1963?

- (a) It mandated the creation of a Parliamentary Committee to review the progress of Hindi for official Union purposes.
- (b) It stipulated that English must be used for communication between the Union and states that have not adopted Hindi as their official language.
- (c) It requires that every Bill introduced in Parliament must be accompanied by an authoritative Hindi translation.
- (d) It was the primary instrument that first introduced Hindi in Devanagari script as the official language of the Union.

Correct Answer: (d)

Explanation:

Statement (d) is incorrect because Article 343 of the Constitution itself introduced Hindi in Devanagari script as the official language of the Union. The Official Languages Act, 1963, was enacted to provide for the continued use of English for official purposes even after the 15-year period (1965) specified in the Constitution.

2. Consider the following statements regarding the official language of the States:

1. A State Legislature is not restricted to choosing only those languages mentioned in the Eighth Schedule of the Constitution as its official language.
2. The Constitution of India limits a State Legislature to declaring only one language as the official language of that State.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

Statement 1 is correct: States can choose any language (several North-Eastern states have English, which is not in the 8th Schedule).

Statement 2 is incorrect: States can declare one or more languages as official. For example, Bihar has Hindi and Urdu.

3. Consider the following statements:

Prelims Marathon MCQs Compilation April 2026

1. Only the Parliament has the power to provide for the use of any language other than English in the proceedings of the Supreme Court.
2. The Governor of a State, with the previous consent of the President, can authorize the use of Hindi or any other official language in the proceedings of the High Court.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Under Article 348, English is the language of the SC and HCs until Parliament provides otherwise. For High Courts, Article 348(2) allows the Governor (with President's consent) to authorize Hindi or another language for proceedings, though judgments/orders must still be in English unless Parliament changes the law.

4. With reference to Classical Languages in India, consider the following statements:

1. The primary criterion for status is high antiquity of early texts over a period of 1500–2000 years.
2. Once a language is notified as Classical, the Center provides for a Center of Excellence for Studies in Classical Languages.
3. Malayalam and Odia were among the first three languages to be accorded this status.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

Statement 1 is correct: To be declared "Classical," a language must prove a recorded history of at least 1,500 to 2,000 years. This is established through: a body of ancient literature or recorded texts considered a valuable heritage by generations of speakers. The literary tradition must be original and not borrowed from another speech community (e.g., it shouldn't be a mere derivative of another language).

Statement 2 are correct: The Central Government establishes a Center of Excellence for Studies in Classical Languages (usually under the Central Institute of Indian Languages).

Statement 3 is incorrect: The first three were Tamil (2004), Sanskrit (2005), and Telugu/Kannada (2008). Malayalam (2013) and Odia (2014) were added later. As of late 2024, the list has been expanded to include Marathi, Pali, Prakrit, Assamese, and Bengali.

5. Match the following Articles of the Constitution with their respective provisions:

Article	Provision

A. Article 341	1. Special procedure for language related to certain laws.
B. Article 350A	2. Facilities for instruction in mother-tongue at primary stage.
C. Article 347	3. Special provision relating to language spoken by a section of the population.
D. Article 349	4. Language to be used in representations for redress of grievances.

Which of the following is the correct tricky match (identifying the correct pair)?

- (a) A - 4
- (b) B - 2
- (c) C - 1
- (d) D - 3

Correct Answer: (b)

Explanation:

1. Article 350A (added by the 7th Amendment) mandates facilities for instruction in the mother-tongue at the primary stage.
2. Article 347 relates to language spoken by a section of the population.
3. Article 349 relates to special procedures for enacting laws related to language.
4. Article 341 empowers the President of India to specify the castes, races, or tribes which shall be deemed to be Scheduled Castes (SCs) in relation to a particular State or Union Territory.

6. Consider the following statements regarding the All-India Services:

1. Members of the All-India Services hold office during the pleasure of the President of India.
2. A member of an All-India Service can be dismissed from service by the Chairman of the Union Public Service Commission.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

Statement 1 is correct: Article 310 of the Indian Constitution enshrines the Doctrine of Pleasure, stating that members of the defence services, Civil Services of the Union, All-India Services, or those holding civil posts under the Union, hold office during the pleasure of the President.

Statement 2 is incorrect: Under Article 311, no member can be dismissed or removed by an authority subordinate to that by which they were appointed. Since they are appointed by the President, only the President (Executive) can dismiss them, not the UPSC (which is an advisory/recruiting body).

7. With reference to All-India Services, consider the following statements:

1. The Rajya Sabha alone can initiate the creation of a new All-India Service through a resolution supported by two-thirds of the members present and voting.
2. The creation of the All-India Judicial Service (AIJS) requires a formal Constitutional Amendment under Article 368.
3. Parliament is empowered to regulate the recruitment and service conditions of persons appointed to these services.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

Statement 1 is correct: Article 312 of the Indian Constitution empowers Parliament to create new All-India Services (AIS) common to the Union and States, including an All-India Judicial Service (AIJS).

Statement 2 is incorrect: Article 312 specifies that a law creating an AIS (including AIJS) is not deemed to be an amendment for the purposes of Article 368. Statement 3 is correct (All India Services Act, 1951).

8. For how many of the following bodies are the Chairperson or members appointed by the Governor, but can be removed ONLY by the President?

1. State Public Service Commission
2. State Election Commission
3. State Human Rights Commission
4. State Information Commission

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All the four

Correct Answer: (c)

Explanation:

The Chairperson/members of the SPSC, SEC, and SHRC are appointed by the Governor but removed only by the President. For the State Information Commission, both the appointment and removal are done by the Governor (as per the RTI Act).

9. With reference to the Joint Public Service Commission (JPSC), which of the following statements are not correct?

1. It is a constitutional body created directly by the Constitution of India.

- Its members hold office for a term of six years or until they attain the age of 62 years.
- The Commission presents its annual report to the President of India.

Select the correct answer:

- 1 and 2 only
- 1 and 3 only
- 2 and 3 only
- 1, 2 and 3

Correct Answer: (b)

Explanation:

Statement 1 is incorrect: JPSC is a statutory body created by an Act of Parliament on the request of state legislatures.

Statement 2 is correct (same as SPSC).

Statement 3 is incorrect: JPSC presents its report to the Governors of the concerned states, who then lay them before the state legislatures.

10. Which of the following is not a unitary (non-federal) feature of the Indian Constitution?

- Single Constitution for Union and States
- Emergency Provisions
- All-India Services
- Bicameralism

Correct Answer: (d)

Explanation:

Bicameralism (having two houses) is a federal feature because the Upper House (Rajya Sabha) represents the states at the center. Single Constitution, Emergency Provisions, and All-India Services are unitary features as they strengthen the central government's control over the states.

Rights and Liabilities of the Government and Special Provisions

for Some States

1. Consider the following statements regarding legal proceedings against government officials in India:

- Judicial officers enjoy absolute immunity from civil liability for acts performed in the discharge of their official duties.
- The State is vicariously liable for all tortious acts committed by its employees, irrespective of whether the act was performed in a sovereign or non-sovereign capacity.

Which of the statements given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Correct Answer: (a)

Explanation:

• **Statement 1 is correct:** Under the Judicial Officers Protection Act (1850), judicial officers are immune from civil liability for acts done in good faith during their official duty.

- **Statement 2 is incorrect:** In India, the State can still plead Sovereign Immunity. While the State is liable for torts in non-sovereign functions (like running a railway), it is generally not held liable for torts committed by employees during sovereign functions (like maintenance of law and order or military activities), though this doctrine is narrowing through judicial activism.

2. Which of the following are recognized as Consumer Rights under the provisions of the Consumer Protection Act, 2019?

1. Right to be protected against the marketing of hazardous goods.
2. Right to be assured of access to a variety of goods at competitive prices.
3. Right to seek redressal against unfair trade practices.
4. Right to file a class-action suit under "Product Liability."

Select the correct answer using the code given below:

- (a) 1, 2, and 3 only
- (b) 1, 2, 3, and 4
- (c) 2 and 4 only
- (d) 1 and 4 only

Correct Answer: (b)

Explanation:

The 2019 Act defines six consumer rights:

- (i) Right to Safety,
- (ii) Right to be Informed,
- (iii) Right to Choose,
- (iv) Right to be Heard,
- (v) Right to seek Redressal, and
- (vi) Right to Consumer Awareness.

The 2019 Act also introduced the concept of Product Liability, allowing consumers to claim compensation from manufacturers/sellers for damages caused by defective products.

3. Which of the following statements is not correct?

- (a) The President specifies the castes, races, or tribes to be deemed as Scheduled Castes in relation to a State or Union Territory.
- (b) The President alone has the exclusive power to notify the list of Socially and Educationally Backward Classes (SEBCs) for the purposes of both the Central and State lists.
- (c) Following recent judicial and constitutional developments, States have the power to provide for sub-classification within the Scheduled Castes for reservation purposes.
- (d) The National Commission for Scheduled Tribes (NCST) must be consulted on all major policy matters affecting Scheduled Tribes, though its advice is not binding.

Correct Answer: (b)

Explanation:

- **Statement (b) is incorrect:** While the 102nd Amendment initially suggested the President has exclusive power, the 105th Constitutional Amendment Act (2021) clarified that State Governments and Union Territories have the power to prepare and maintain their own lists of SEBCs (State List), independent of the Central List.
- A landmark 7-judge bench of the Supreme Court (2024) ruled that States can sub-classify SCs to provide more benefits to "more backward" groups within the category.

4. Consider the following statements regarding the National Commission for Backward Classes (NCBC):

1. The NCBC was accorded constitutional status via the 102nd Constitutional Amendment Act, 2018, which inserted Article 338B.
2. The composition, tenure, and conditions of service of the members of the NCBC are determined by the President of India.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** The NCBC, originally a statutory body, became a constitutional body under Article 338B through the 102nd Amendment (not the 100th).
 - **Statement 2 is correct:** According to Article 338B, the President determines the rules regarding the number of members (currently a Chairperson, Vice-Chairperson, and three other members) and their service conditions.

5. Consider the following statements regarding the representation of States in Indian Legislatures:

1. Uttar Pradesh possesses the highest number of seats in the Rajya Sabha.
2. Madhya Pradesh has the largest number of Lok Sabha seats reserved for Scheduled Tribes (STs).
3. Maharashtra has the second-highest number of Legislative Assembly (Vidhan Sabha) seats in India.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** UP has 31 seats in Rajya Sabha (the highest).
 - **Statement 2 is incorrect:** While Jharkhand has many, Madhya Pradesh has the highest number of Lok Sabha seats reserved for STs (6 seats).
 - **Statement 3 is incorrect:** West Bengal (294) is second after UP (403). Correction: West Bengal actually has more seats than Maharashtra (288). Therefore, only two statements (1 and 2) are generally the focus of such comparisons.
(Note: UP=403, WB=294, Maharashtra=288).

6. With reference to the National Integration Council (NIC), consider the following statements:

1. It was established in 1961 following a recommendation from the National Integration Conference to combat communalism and regionalism.
2. Its membership includes the Prime Minister, Union Ministers, Chief Ministers of all States, and leaders of recognized political parties.
3. The NIC is a statutory body mandated by law to meet at least twice a year.

Which of the statements given above are correct?

- (a) 1 and 2 only

- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 and 2 are correct:** The NIC is an extra-constitutional, extra-statutory body chaired by the PM.
- **Statement 3 is incorrect:** It is not a statutory body, and it has no fixed mandate for meeting frequency. In fact, it has met very sporadically over the last few decades.

7. Regarding the special provisions for states under Part XXI of the Constitution, consider the following statements:

1. Under Article 371A, no Act of Parliament concerning Naga religious or social practices applies to Nagaland unless approved by the State Legislative Assembly.
2. The Governor of Arunachal Pradesh has a special responsibility with respect to law and order, and he can exercise individual judgment in this regard.
3. The Goa Legislative Assembly must consist of not less than 40 members as per Article 371-I.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

All statements are correct. Article 371A (Nagaland) protects Naga customary law. Article 371H (Arunachal Pradesh) gives the Governor special powers for law and order. Article 371-I (Goa) sets the assembly strength at a minimum of 40.

8. With reference to Article 371-B of the Constitution of India, consider the following statements:

1. It was inserted by the 22nd Constitutional Amendment Act, 1969.
2. It empowers the President to provide for the constitution of a committee of the Assam Legislative Assembly consisting of members elected from tribal areas.
3. The Governor of Assam has a special responsibility to ensure the functioning of this committee.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** Article 371-B was added by the 22nd Amendment to facilitate the creation of an autonomous state within Assam (which later led to Meghalaya).
- **Statement 3 is incorrect:** The Article empowers the President to provide for the committee's constitution and functions; it does not explicitly assign special responsibility for law and order to the Governor.

9. Under the Special Provisions of the Constitution (Articles 371 to 371-J), which of the following Governors has a special responsibility for the establishment of separate development boards for specific regions?

- (a) Governor of Assam
- (b) Governor of Nagaland
- (c) Governor of Maharashtra and Gujarat
- (d) Governor of Manipur

Correct Answer: (c)

Explanation:

Under Article 371, the President may provide that the Governors of Maharashtra and Gujarat have special responsibility for the establishment of separate development boards for Vidarbha, Marathwada (Maharashtra), and Saurashtra and Kutch (Gujarat).

10. Which of the following pairs is correctly matched regarding the minimum number of members in the State Legislative Assembly as per Special Provisions?

- 1. Mizoram : 40 members (Article 371G)
- 2. Goa : 40 members (Article 371-I)
- 3. Sikkim : 32 members (Article 371F)

Select the correct answer:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

All are correct. While the general rule is a minimum of 60 members (Article 170), these states have specific exceptions: Mizoram and Goa are set at 40, while Sikkim is set at 32.

Political Parties

1. Consider the following statements regarding the differences between the Indian and British political systems:

- 1. Unlike the British system, the sovereignty of Parliament is restricted in India by a written Constitution and judicial review.
- 2. In India, ministers are not legally required to countersign the official acts of the Head of the State, unlike the practice in Britain.
- 3. In both systems, the Speaker of the House is conventionally required to resign from their political party upon election to maintain strict neutrality.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** In Britain, Parliament is supreme; in India, the Constitution is supreme.
 - **Statement 2 is correct:** In Britain, every order of the Monarch is countersigned by a minister who is then legally responsible. India does not follow this system of legal responsibility for ministers.
 - **Statement 3 is incorrect:** In Britain, the Speaker resigns from the party. In India, while the Speaker is expected to be impartial, there is no such mandatory convention or requirement to resign from the party.

2. The Directive Principles of State Policy (DPSP) are considered fundamental to the governance of the country because:

1. They facilitate the courts in examining and determining the constitutional validity of a law.
2. They serve as a common political manifesto for all parties, ensuring continuity in socio-economic goals despite changes in government.
3. They provide a yardstick for the electorate to evaluate the performance of the government.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation: DPSPs are non-justiciable but fundamental in the governance of the country.

- **Statement 1 is correct:** The Supreme Court has ruled that in determining the constitutionality of any law, if the court finds the law seeks to give effect to a DPSP, it may consider such law to be reasonable.
- **Statement 2 and 3 are correct:** They provide a baseline social and economic order that any party in power is expected to pursue, acting as a guide for both the rulers and the ruled.

3. Consider the following statements regarding political party funding and election expenditure in India:

1. While there are strict statutory limits on the expenditure of individual candidates, there is no legal cap on the amount a political party can spend during elections.
2. Currently, there is a statutory cap of 7.5% of the average net profits of the preceding three years on corporate contributions to political parties.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Section 77 of the RPA, 1951, limits candidate spending, but political parties have no such ceiling.
 - **Statement 2 is incorrect:** The 7.5% cap on corporate donations was removed by the Finance Act, 2017. Companies can now theoretically donate any amount of their profit to political parties.

4. Consider the following information categories:

1. Candidate's Serial Number
2. Candidate's Name
3. Candidate's Photograph
4. Party Symbol

How many of the above are visible to the voter on a Voter Verified Paper Audit Trail (VVPAT) slip during the 7-second window?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (c)

Explanation:

The VVPAT slip displays the Serial Number, Name of the Candidate, and the Symbol of the party/candidate. It does not contain the candidate's photograph or any identity details of the voter to maintain the secrecy of the ballot.

5. If India were to transition from the 'First Past The Post' (FPTP) system to a Proportional Representation (PR) system for Lok Sabha elections, which of the following are the most likely consequences?

1. A closer correlation between the percentage of total votes polled by a party and the number of seats it wins.
2. An increased likelihood of multi-party coalition governments due to the difficulty of a single party securing a clear majority.
3. Enhanced representation for smaller, geographically dispersed interest groups and minority parties.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

Under FPTP, a party can win a majority of seats with only 30-35% of votes (as seen in India). PR ensures seats match vote share. However, PR often leads to fragmented legislatures where no single party wins a majority, making coalitions inevitable.

6. According to the Election Symbols (Reservation and Allotment) Order, which of the following conditions is/are sufficient for a political party to be recognized as a 'National Party'?

1. It secures at least 6% of valid votes in four or more states in a Lok Sabha or Assembly election, and wins 4 seats in the Lok Sabha from any state.
2. It wins 2% of seats in the Lok Sabha at a general election, and these candidates are elected from at least three different states.
3. It is recognized as a 'State Party' in at least four states.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

These are the three distinct criteria for National Party status. Fulfilling any one of these is sufficient. Note that for condition 3, the party must be recognized in four states, not two.

7. A Nationally Recognized political party in India enjoys which of the following statutory or administrative benefits?

1. Exclusive use of a reserved election symbol throughout the country.
2. Entitlement to two sets of electoral rolls free of cost during the revision of rolls.
3. Provision of government-subsidized land or buildings for party headquarters in the national capital.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (c)

Explanation:

Recognized parties (National and State) get several benefits. National parties get a symbol reserved across India; State parties get it reserved within that state. They also get free electoral rolls, broadcast time on AIR/Doordarshan, and the ability to have up to 40 "Star Campaigners" whose travel costs aren't added to candidate accounts.

8. Consider the following statements regarding the Election Commission of India (ECI):

1. The Supreme Court has ruled that the ECI lacks the power to de-register a political party on the grounds of violating the Constitution or its own internal bylaws.
2. The determination of the election schedule and the enforcement of the Model Code of Conduct (MCC) are within the exclusive jurisdiction of the ECI.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

• **Statement 1 is correct:** While ECI can register a party under Section 29A of RPA 1951, it does not have the power to de-register it (except in very limited cases like fraud or being declared unlawful by the Center).

- **Statement 2 is correct:** The ECI has plenary powers under Article 324 to schedule elections and manage the MCC.

9. In how many of the following scenarios does a Member of Parliament (MP) face "automatic" or immediate disqualification from their seat?

1. Conviction by a criminal court for an offence with a sentence of two years or more.
2. Resignation from their political party to join the State Legislative Assembly.
3. Voluntary relinquishment of membership of the political party that gave them the ticket.
4. Casting a vote in the House contrary to the directions (Whip) issued by the party.

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All the four

Correct Answer: (b)

Explanation:

- **Scenario 1:** Per the Lily Thomas judgment, an MP is disqualified immediately upon conviction for 2+ years.
 - **Scenario 2:** Resigning to join the State Assembly is a vacancy, but not disqualification.
 - **Scenarios 3 and 4:** These fall under the 10th Schedule (Anti-Defection). Disqualification is NOT automatic; it must be decided by the Presiding Officer (Speaker/Chairman).

10. Which of the following actions will trigger disqualification proceedings under the Tenth Schedule of the Constitution?

1. An independent member of the House joins a political party after the election.
2. A nominated member joins a political party after the expiry of six months from the date of taking their seat.
3. A member voluntarily gives up the membership of their party because the party decided to sit in the opposition.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) None

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Independents cannot join any party.
 - **Statement 2 is correct:** Nominated members have a 6-month window to join a party; after that, it's a violation.
 - **Statement 3 is correct:** Voluntarily giving up membership for any political reason (other than a merger of 2/3rds of the party) attracts defection.
 - A Speaker resigning from their party to maintain neutrality is an exception and does not attract the 10th Schedule.

Political Parties

1. Consider the following statements regarding the tenure of the Lok Sabha:

1. While the normal term of the Lok Sabha is five years, the President has the authority to dissolve the House earlier if no alternative government can command its confidence.
2. Upon the expiration of the five-year term, the Lok Sabha stands dissolved automatically without any formal order from the President.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2

(d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Under Article 83, the Lok Sabha has a term of five years from the date of its first meeting, after which it dissolves automatically. However, under Article 85, the President can dissolve it earlier on the advice of the Council of Ministers, or at their discretion if the government loses confidence and no alternative is viable.

2. With reference to the schedule and formal process of elections in India, consider the following statements:

1. The Constitution mandates that the interval between the last session of a dissolved Lok Sabha and the recalling of the new House must not exceed six months.
2. The Model Code of Conduct (MCC) is legally triggered only after the formal Notification is issued by the President or Governor.
3. Once the election notification is issued, candidates are typically provided a window of one week to file their nominations.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

1. **Statement 1 is correct:** Under Article 85(1) of the Indian Constitution, the maximum permitted interval between the last sitting of a session of the dissolved Lok Sabha and the first sitting of the new House must not exceed six months. This ensures regular parliamentary meetings and democratic accountability, requiring at least two sessions per year.
2. **Statement 2 is incorrect:** the MCC comes into effect immediately upon the announcement of the election schedule by the Election Commission in a press conference, which happens before the formal notification.
3. **Statement 3 is correct:** RPA 1951

3. Consider the following statements regarding the mandatory oath for election candidates:

1. A candidate must subscribe to an oath or affirmation before the Returning Officer (RO) or an Assistant Returning Officer (ARO) of the constituency.
2. To be valid, this oath must be taken by the candidate in person after filing the nomination, but no later than the day of the scrutiny of nominations.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct.** To manage the workload across a large constituency, all Assistant Returning Officers (AROs) subordinate to the Returning Officer are also authorised to administer this oath.

· **Statement 2 is incorrect:** The oath must be made after filing nomination but no later than the day previous to the date of scrutiny. Taking the oath on the day of scrutiny itself is too late and can lead to rejection of the nomination.

4. Consider the following statements regarding the transition between Houses:

1. The six-month rule between the dissolution of the old House and the first meeting of the new House is a statutory provision under the Representation of the People Act, 1951.
2. The Election Commission is the sole authority responsible for announcing the election schedule, which precedes the formal Presidential notification.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The six-month rule is a Constitutional mandate under Article 85, not a statutory one.
- **Statement 2 is correct:** The EC announces the dates, while the President/Governor issues the formal notification based on those dates.

5. Under the Model Code of Conduct for the guidance of political parties and candidates, which of the following is/are prescribed?

1. A total prohibition on the distribution or service of liquor on the polling day and during the 48 hours preceding the conclusion of the poll.
2. An obligation for political parties to provide their authorized workers with suitable identity cards or badges.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Both are standard requirements under the MCC. Note that the dry period is generally 48 hours preceding the conclusion of the poll (often referred to as the period of election silence).

6. The authority to hear and decide an Election Petition challenging the election of a Member of Parliament or a State Legislature is vested in the:

- (a) Supreme Court of India
- (b) Election Commission of India
- (c) High Court of the concerned State
- (d) Special Election Tribunal

Correct Answer: (c)

Explanation:

Under Article 329(b) and the RPA 1951, the High Court has the original jurisdiction to hear election petitions. Earlier, Election Tribunals performed this task, but they were abolished in 1966.

7. With reference to election petitions in India, consider the following statements:

1. An election petition must be filed within 45 days from the date of the declaration of the election result.
2. The High Court is required to conclude the trial of an election petition, as far as practicable, within six months of its filing.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** (RPA 1951 specifies 45 days).
- **Statement 2 is correct:** Although many cases take longer, the Act specifies a desirable timeline of six months for disposal.

8. Consider the following statements:

Statement I: A person who is in lawful police custody or confined in a prison cannot file a nomination to contest an election.

Statement II: Under the Representation of the People Act, 1951, no person shall vote at any election if he is confined in a prison or is in the lawful custody of the police.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement I and Statement II are correct.
- (b) Both Statement I and Statement II are incorrect.
- (c) Statement I is incorrect, but Statement II is correct.
- (d) Statement I is correct, but Statement II is incorrect.

Correct Answer: (c)

Explanation:

- **Statement II is correct:** (Section 62(5) of RPA 1951).
- **Statement I is incorrect:** In the Jan Chaukidari case, the SC initially said those who can't vote can't contest, but Parliament amended the law to clarify that as long as a person's name is on the roll, they can contest even if their right to vote is suspended while in prison.

9. Consider the following statements regarding the NOTA option:

1. If NOTA receives the highest number of votes, the candidate with the second-highest votes is declared the winner.
2. NOTA votes are treated as invalid votes and are not counted for the purpose of calculating the one-sixth vote threshold required to save a candidate's security deposit.
3. The NOTA option is provided in the elections to both the Lok Sabha and the Rajya Sabha.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** (NOTA is currently a symbolic rejecter in India; the highest human candidate wins).
- **Statement 2 is correct:** (ECI guidelines).
- **Statement 3 is incorrect:** The Supreme Court in 2018 abolished NOTA in Rajya Sabha elections, stating it is only meant for direct universal suffrage.

10. With reference to Electronic Voting Machines (EVMs), consider the following statements:

1. The legal sanction for the use of EVMs was provided by inserting Section 61A into the Representation of the People Act, 1951.
2. EVMs used in India are standalone machines that are not connected to any wired or wireless network, including a centralized server.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Inserted in 1989).
- **Statement 2 is correct:** Indian EVMs are standalone and cannot be monitored through a centralized storage server (as suggested in the user's draft), which is a key security feature to prevent hacking.

Political Parties

1. Arrange the following electoral milestones in the correct chronological order:

1. Introduction of the NOTA (None of the Above) option in General Elections.
2. Extension of voting rights to Non-Resident Indians (NRIs).
3. Mandatory disclosure of criminal antecedents by candidates along with nomination papers.

Select the correct answer using the code given below:

- (a) 1-3-2
- (b) 3-2-1
- (c) 2-1-3
- (d) 3-1-2

Correct Answer: (b)

Explanation:

- **2002/03:** Following the Supreme Court judgment in the ADR case (2002), disclosure of criminal, financial, and educational records became compulsory.
 - **2011:** The Representation of the People (Amendment) Act, 2010, gave voting rights to NRIs, effective from 2011.
 - **2013:** The Supreme Court directed the ECI to introduce NOTA in the PUCL vs. Union of India case in 2013.

2. Arrange the following committees/commissions related to electoral reforms in chronological order of their establishment:

1. Indrajit Gupta Committee
2. Dinesh Goswami Committee
3. Tarkunde Committee
4. Vohra Committee

Select the correct answer using the code given below:

- (a) 3-2-4-1
- (b) 2-3-1-4
- (c) 3-4-2-1
- (d) 4-3-2-1

Correct Answer: (a)

Explanation:

- **Tarkunde Committee (1974):** Appointed by JP Narayan to suggest reforms during the Total Revolution.
 - **Dinesh Goswami Committee (1990):** Focused on state funding and checking muscle power.
 - **Vohra Committee (1993):** Examined the nexus between politicians and criminals.
 - **Indrajit Gupta Committee (1998):** Specifically focused on state funding of elections.

3. Consider the following commissions/reports. Which is the correct chronological sequence?

1. 2nd Administrative Reforms Commission (ARC) Report on Ethics in Governance.
2. J.S. Verma Committee Report on Amendments to Criminal Law.
3. National Commission to Review the Working of the Constitution (NCRWC).
4. Tankha Committee on Election Laws.

Select the correct answer using the code given below:

- (a) 3-1-4-2
- (b) 1-3-2-4
- (c) 3-4-1-2
- (d) 4-3-1-2

Correct Answer: (a)

Explanation:

- **NCRWC (2000–2002):** Headed by M.N. Venkatachaliah.
 - **2nd ARC (2007):** Headed by Veerappa Moily (Report on Ethics in Governance).
 - **Tankha Committee (2010):** Core committee to look into election laws.
 - **J.S. Verma Committee (2013):** Formed after the 2012 Delhi gang rape case; suggested electoral reforms regarding candidates with criminal charges.

4. Which of the following are the primary functions of the National Centre for Good Governance (NCGG)?

1. Acting as a think tank for governance and policy reforms across administrative and social spheres.
2. Functioning as a national repository of information on best practices and methodologies in governance.
3. Promoting the sharing and replication of innovative ideas and successful governance models.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

The NCGG is an autonomous institution under the Ministry of Personnel, Public Grievances and Pensions. It works as a policy think tank, maintains a repository of best practices, and conducts capacity-building programs for civil servants to replicate successful governance models.

5. Consider the following statements regarding the Sevottam framework:

1. It is a service delivery excellence model developed by the Department of Administrative Reforms and Public Grievances (DARPG).
2. The framework consists of three components: Citizen's Charter, Public Grievance Redressal Mechanism, and Service Delivery Capability.
3. It was first implemented as a pilot project by the Ministry of Railways.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

• **Statement 1 is correct:** Sevottam is an assessment - improvement model that has been developed with the objective of improving the quality of public service delivery in the country. The model was conceived by the Department of Administrative Reforms & Public Grievances (DARPG), Ministry of Personnel, Public Grievances and Pensions in 2006.

- **Statement 2 is correct:** These are the three pillars of Sevottam.
- **Statement 3 is incorrect:** The model was initially launched by the DARPG; individual departments implemented it later. There is no historical record of Kerala being the "first state" in the context of the DARPG Sevottam launch (it is a central government model).

6. Which of the following committees/commissions are specifically associated with police reforms in India?

1. Dharma Vira Commission
2. Padmanabhaiah Committee
3. Ribeiro Committee
4. Malimath Committee

Select the correct answer using the code given below:

- (a) 1, 2 and 3 only
- (b) 1, 3 and 4 only
- (c) 2 and 4 only
- (d) 1, 2, 3 and 4

Correct Answer: (d)

Explanation:

- **Dharma Vira (National Police Commission, 1977-81).**
 - **Ribeiro Committee (1998).**
 - **Padmanabhaiah Committee (2000).**
 - **Malimath Committee (2003):** Although focused on the Criminal Justice System, it included significant police reforms.

7. Which Constitutional Amendment Act reduced the voting age from 21 years to 18 years for Lok Sabha and State Legislative Assembly elections?

- (a) 52nd Amendment
- (b) 61st Amendment
- (c) 69th Amendment
- (d) 73rd Amendment

Correct Answer: (b)

Explanation:

The 61st Constitutional Amendment Act, 1988 (enforced in 1989) amended Article 326 of the Constitution to reduce the voting age. This was done to provide the unrepresented youth an opportunity to participate in the political process.

8. In the context of the Representation of the People Act, 1951, which of the following actions constitute "booth capturing"?

1. Forcibly seizing a polling station and compelling authorities to surrender voting machines.
2. Threatening electors to prevent them from reaching the polling station.
3. Seizing a place used for the counting of votes to interfere with the result.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

Section 135A of the RPA 1951 defines booth capturing broadly. It includes seizure of the polling booth, preventing voters from voting, and seizing the counting center. It is a cognizable offence.

9. With reference to Supreme Court decisions on electoral reforms, consider the following statements:

1. In the ADR Case (2002), the court ruled that voters have a fundamental right to know about a candidate's assets, liabilities, and criminal history.
2. In the Lily Thomas Case (2013), the court struck down Section 8(4) of the RPA 1951, leading to the immediate disqualification of convicted legislators sentenced to 2+ years.
3. The Supreme Court ruled that the Election Commission has no power to monitor or regulate election expenditures.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

Statement 1 & 2 are correct: These landmark Supreme Court rulings significantly enhanced electoral transparency and accountability in India. The ADR Case (2002) established that voters have a fundamental right under Article 19(1)(a) to know a candidate's criminal antecedents, assets, and liabilities. The Lily Thomas

Case (2013) struck down Section 8(4) of the RPA 1951, resulting in the immediate disqualification of MPs/MLAs upon conviction for offenses sentenced to two or more years, removing their previous immunity from immediate disqualification.

- **Statement 3 is incorrect:** The Supreme Court and the RPA 1951 empower the ECI to monitor expenditures. Candidates must submit accounts, and exceeding limits can lead to disqualification for 3 years (Common Cause vs. Union of India).

10. Regarding recent proposals by the Election Commission of India (ECI), consider the following statements:

1. The ECI has recommended lowering the threshold for reporting anonymous donations from ₹20,000 to ₹2,000.
2. The ECI has proposed that a candidate should be legally barred from contesting from more than one constituency in a single general election.
3. It has suggested making the filing of false affidavits a "corrupt practice" under the RPA 1951.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation: All statements represent active ECI recommendations.

- **Donations:** To increase transparency in party funding.
- **One Seat:** Currently, Section 33(7) allows contesting from two seats; ECI wants this restricted.
- **False Affidavits:** To ensure candidates do not mislead the public regarding their background.

Subjects of Union, State and Concurrent Lists

1. Consider the following statements regarding the distribution of legislative powers:

1. The Parliament possesses exclusive jurisdiction to legislate on any matter enumerated in the Union List.
2. In the event of a conflict between a Central law and a State law regarding a subject in the Concurrent List, the Central law prevails, provided it has received Presidential assent.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Article 246 grants Parliament exclusive power over List I.
- **Statement 2 is incorrect:** Generally, Central law prevails (Federal Supremacy). However, there is an exception: if a State law on a Concurrent subject is inconsistent with a Central law but has been reserved for and received the assent of the President, the State law prevails in that particular State.

2. Which of the following Parliamentary laws enacted on a subject mentioned in the State List will continue to be in force indefinitely until specifically repealed by the appropriate legislature?

1. A law enacted to implement an international treaty or convention (Article 253).
2. A law enacted during the operation of a National Emergency (Article 250).
3. A law enacted while a State is under President's Rule (Article 357).
4. A law enacted following a resolution by the Rajya Sabha in the national interest (Article 249).

Select the correct answer using the code given below:

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 2 and 3 only
- (d) 1, 3 and 4 only

Correct Answer: (a)

Explanation:

• **International Agreements (Art 253):** These laws do not have a constitutional expiry date and remain in force until repealed.

- **President's Rule (Art 357):** Laws made by Parliament do not become inoperative on the expiry of the proclamation. They continue until altered or repealed by the State Legislature.
- **National Emergency (Art 250) & Rajya Sabha Resolution (Art 249):** These laws cease to have effect on the expiration of six months after the proclamation/resolution has ceased to operate.

3. Which one of the following statements is not correct regarding the Constitutional status of Cooperative Societies?

- (a) Cooperative Societies is a subject specifically enumerated in the State List of the Seventh Schedule.
- (b) The right to form cooperative societies is a Fundamental Right guaranteed under Article 19.
- (c) The Constitution provides a Fundamental Right to every citizen to become a member of any cooperative society of their choice.
- (d) Parliament has the power to legislate for multi-state cooperative societies.

Correct Answer: (c)

Explanation:

- **(a) & (b) are correct:** Added by the 97th Amendment Act, 2011.
- **(d) is correct:** Multi-state cooperatives fall under the Union List.
- **(c) is incorrect:** While there is a right to *form* a society, there is no fundamental right to *membership* in a specific society, as societies have their own autonomous bye-laws and entry criteria.

4. Regarding Parliamentary legislation on subjects in the State List following a Rajya Sabha resolution, consider the following statements:

1. The resolution must be passed by the Rajya Sabha with a majority of not less than two-thirds of the members present and voting.
2. Once such a law is enacted, the State Legislature is prohibited from making any law on that specific subject.
3. Such a law remains in force for a maximum period of one year, though the resolution can be renewed indefinitely.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 & 3 are correct:** Article 249 allows this for National Interest. The resolution lasts 1 year but can be renewed.
- **Statement 2 is incorrect:** The State legislature does not lose its power to make a law on the same subject. However, in case of inconsistency, the Parliamentary law prevails.

5. Consider the following statements regarding the taxation powers in India:

1. The power to impose a tax not mentioned in any of the three lists (Residuary Taxation) is vested exclusively in the Parliament.
2. State Legislatures have the authority to levy "Professional Tax," even if it exceeds the limits of their enumerated powers in List II.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Under Article 248, residuary powers (including taxation) belong to the Union. (e.g., Gift tax, Wealth tax).
- **Statement 2 is incorrect:** While States can levy Professional Tax (Art 276), there is a **Constitutional cap** (currently ₹2,500 per annum). They cannot exceed this limit.

6. Which of the following matters are covered under List-I (Union List) of the Seventh Schedule?

1. Atomic Energy and Mineral Resources necessary for its production.
2. Foreign Loans and External Borrowings.
3. Post Office Savings Bank.
4. Public Health and Sanitation.

Select the correct answer using the code given below:

- (a) 1, 2 and 3 only
- (b) 2, 3 and 4 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Correct Answer: (a)

Explanation:

- 1, 2, and 3 are Union subjects.
- Public Health and Sanitation is a State Subject (Entry 6, List II).

7. Which one of the following subjects is not a part of the State List (List II) in the Seventh Schedule?

- (a) Prisons and Reformatories.
- (b) Taxes on lands and buildings.
- (c) Stock Exchanges and Futures Markets.
- (d) Relief of the disabled and unemployable.

Correct Answer: (c)

Explanation:

- Stock Exchanges and Futures Markets fall under the Union List (Entry 48).

- Prisons, Land Tax, and Relief for the disabled are all core State subjects.

8. Consider the following pairs of Subjects and Lists:

1. **Preventive Detention:** Both Union and Concurrent List.
2. **Trade Unions:** Concurrent List.
3. **Public Order:** State List.
4. **Education:** Concurrent List.

How many of the above pairs are correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

Correct Answer: (d)

Explanation:

- **Pair 1 is correct:** Preventive detention for reasons connected with Defense/Foreign Affairs is Union List; for reasons connected with security of State/Public Order, it is Concurrent.
- **Pair 2 is correct:** Trade unions and industrial/labor disputes are Concurrent.
- **Pair 3 is correct:** Public Order (but not including the use of any naval, military or air force) is State.
- **Pair 4 is correct:** Moved from State to Concurrent by the 42nd Amendment, 1976.

9. Which of the following items fall under the Concurrent List of the Indian Constitution?

- (a) Inter-State Rivers and River Valleys.
- (b) Adulteration of Foodstuffs.
- (c) Citizenship, Naturalization and Aliens.
- (d) Local Government.

Correct Answer: (b)

Explanation:

- Inter-state rivers and Citizenship are Union List.
- Local Government is State List.
- Adulteration of foodstuffs is a Concurrent subject (Entry 18), allowing both Centre and States to regulate food safety.

10. Which one of the following issues comes under the Concurrent List?

- (a) Corporation Tax.
- (b) Capitation Taxes.
- (c) Marriage and Divorce.
- (d) Taxes on Professions, Trades, and Callings.

Correct Answer: (c)

Explanation:

- **Corporation Tax:** Union List.
- **Capitation Taxes:** State List.
- **Marriage and Divorce:** Concurrent List.
- **Professional Tax:** State List.

Prelims Marathon 14 April 2026

Created with love ❤️ by ForumIAS- the knowledge network for civil services.
Visit academy.forumias.com for our mentor based courses.

Table of Precedence, Oath by the Constitutional and Other Authorities

1. Consider the following statements regarding the Table of Precedence in India:

1. It is a protocol list that establishes the relative rank and order of high-ranking officials of the Union and State Governments.
2. The order is strictly intended for state and ceremonial occasions and has no legal application in the day-to-day business of the Government.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

The Table of Precedence is issued by the President's Secretariat and maintained by the Ministry of Home Affairs. It ensures order during formal state functions. It does not dictate the functional hierarchy or the administrative powers used in daily government operations.

2. What is the correct sequence of the following functionaries in the Indian Order of Precedence, descending from highest to lowest rank?

1. Governors of States (within their respective states)
2. Former Prime Ministers
3. Judges of the Supreme Court
4. Comptroller and Auditor General (CAG) of India

Select the correct answer using the codes given below:

- (a) 1-2-3-4
- (b) 2-1-4-3
- (c) 1-2-4-3
- (d) 2-3-1-4

Correct Answer: (a)

Explanation:

According to the warrant:

- **Rank 4:** Governors within their states.
- **Rank 7:** Former Prime Ministers (shared with Leaders of Opposition).
- **Rank 9:** Judges of the Supreme Court.
- **Rank 9A:** CAG of India (along with the Chief Election Commissioner).

3. Consider the following statements regarding the Warrant of Precedence:

1. The Leader of the Opposition in the Lok Sabha holds a higher rank than the Chairperson of the Union Public Service Commission (UPSC).
2. The present notification governing the Order of Precedence was officially issued in 1979.
3. The Attorney-General for India ranks below the Judges of the High Courts within their respective jurisdictions.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two

- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** Leader of Opposition is Rank 7; UPSC Chairperson is Rank 11.
- **Statement 2 is correct:** The current order was notified on July 26, 1979.
- **Statement 3 is incorrect:** The Attorney-General is Rank 11, while High Court Judges (within their jurisdiction) are Rank 14.

4. Regarding the assignment of ranks to dignitaries, consider the following statements:

1. The Ministry of External Affairs (MEA) has the authority to assign appropriate ranks to foreign dignitaries and Indian Ambassadors during their visits to India.
2. In the MEA, all Secretaries take precedence after the Foreign Secretary, with their mutual seniority determined by their grade in the Indian Foreign Service.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Protocol regarding foreign diplomats is managed by the MEA. The Foreign Secretary is the administrative head of the ministry and therefore ranks above other Secretaries in the same department regardless of IFS seniority.

5. Consider the following statements regarding the administration of oaths:

1. Every member of Parliament must make and subscribe an oath before the Speaker of their respective House before taking their seat.
2. The Comptroller and Auditor-General (CAG) of India must subscribe an oath before the President of India before entering office.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** Under Article 99, MP-elects subscribe their oath before the **President** or some person appointed by him for that purpose (usually the Pro-tem Speaker), not necessarily the Speaker.
- **Statement 2 is correct:** Under Article 148, the CAG takes the oath before the President.

6. In the event of the absence of the Chief Justice of a State High Court, who is constitutionally empowered to administer the oath of office to the Governor of that State?

- (a) The Chief Justice of India
- (b) The Pro-tem Speaker of the State Assembly

- (c) The seniormost Judge of the State High Court available
- (d) The President of India

Correct Answer: (c)

Explanation:

Article 159 states that the Governor's oath is administered by the Chief Justice of the High Court exercising jurisdiction in relation to the State, or, in his absence, the seniormost Judge of that Court available.

7. Which of the following is not a specific provision included in the form of oath or affirmation for a Judge of a High Court?

- (a) To bear true faith and allegiance to the Constitution of India.
- (b) To uphold the sovereignty and integrity of India.
- (c) To devote oneself to the service and well-being of the people of the state.
- (d) To perform duties without fear or favour, affection or ill-will.

Correct Answer: (c)

Explanation:

Devoting oneself to the service and well-being of the people is a part of the oath taken by the President and the Governor. Judges swear to uphold the Constitution and the laws and to perform their duties impartially (fear or favour).

8. With reference to a Judge of a High Court in India, consider the following statements:

1. Unlike the Supreme Court, a "distinguished jurist" cannot be appointed as a Judge of a High Court.
2. High Court Judges subscribe to their oath or affirmation before the Governor of the State.
3. To ensure judicial independence, the Constitution has fixed the tenure of High Court Judges until they attain the age of 65 years.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** The provision for "distinguished jurist" exists only for the Supreme Court (Art 124), not High Courts (Art 217).
- **Statement 2 is correct:** Art 219 mandates the oath before the Governor.
- **Statement 3 is incorrect:** The retirement age for High Court judges is 62 years, not 65 (65 is for the Supreme Court).

9. What are the constitutional consequences if a person elected to a House of Parliament fails to subscribe to the prescribed oath?

1. They can participate in the proceedings of the House or vote on any issue.
2. They are ineligible to claim the protection of Parliamentary privileges and immunities.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2

(d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

Statement 1 incorrect: They can participate in the proceedings of the House or vote on any issue. Until a member takes the oath, they are not considered a member for functional purposes.

Statement 2 correct: Under Article 104, if they sit or vote without an oath, they are liable to a penalty of ₹500 per day. Furthermore, they cannot access privileges meant for active members.

10. Consider the following functionaries:

1. Vice-President of India
2. Governor of a State
3. Judges of the Supreme Court
4. Candidates for election to Parliament
5. Comptroller and Auditor General (CAG)

How many of the above have their specific forms of oath or affirmation provided under the Third Schedule of the Constitution?

- (a) Only two
- (b) Only three
- (c) Only four
- (d) All five

Correct Answer: (b)

Explanation:

- **Included in 3rd Schedule:** Judges of SC (3), Candidates for Parliament (4), and CAG (5).
- **Excluded from 3rd Schedule:** The Oaths for the President (Art 60), Vice-President (Art 69), and Governor (Art 159) are provided within their respective Articles in the main body of the Constitution, not in the Third Schedule.

Important Amendments

1. In the context of the evolution of the Indian Constitution, the Directive Principles of State Policy (DPSP) have been amended/supplemented by which of the following?

- (a) Once
- (b) Twice
- (c) Thrice
- (d) Four times

Correct Answer: (d)

Explanation: The DPSP (Part IV) have been amended four times:

1. **42nd Amendment (1976):** Added four new principles (Art 39, 39A, 43A, 48A).
2. **44th Amendment (1978):** Added one more (Art 38, cl 2).
3. **86th Amendment (2002):** Changed the subject matter of Art 45.
4. **97th Amendment (2011):** Added Art 43B (Co-operative societies).

2. Which of the following statements regarding the Preamble of the Indian Constitution is/are correct?

1. The term "Integrity" was inserted into the Preamble by the 44th Constitutional Amendment Act.

2. In the Berubari Union case, the Supreme Court observed that the Preamble serves as a key to open the minds of the makers of the Constitution.
3. The Preamble is considered a legal source of power for the Union Legislature.

Select the correct answer using the code given below:

- (a) 2 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is incorrect:** Socialist, Secular, and Integrity were added by the 42nd Amendment (1976), not the 44th.
- **Statement 2 is correct:** This specific observation was made in the Berubari Union case (1960).
- **Statement 3 is incorrect:** The Preamble is neither a source of power to the legislature nor a prohibition upon its powers.

3. Consider the following statements regarding the alteration of Indian territory:

1. The 100th Constitutional Amendment Act was enacted to give effect to the acquiring of certain territories by India and the transfer of certain other territories to Bangladesh.
2. The settlement of a boundary dispute between India and another country requires a Constitutional amendment under Article 368.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** It gave effect to the 1974 Land Boundary Agreement.
- **Statement 2 is incorrect:** As per the Supreme Court (1969), the settlement of a boundary dispute does not involve cession of territory and can be done by executive action. Only cession of Indian territory to a foreign state requires an amendment under Article 368.

4. With reference to the 86th Constitutional Amendment Act, 2002, consider the following statements:

1. It substituted the subject matter of Article 45 to provide for early childhood care and education for all children until they complete the age of six years.
2. It added a new Fundamental Duty under Article 51A, making it the duty of a parent or guardian to provide opportunities for education to his child/ward between the age of six and fourteen years.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Both statements are correct. The 86th Amendment made education a Fundamental Right (Art 21A), changed the DPSP (Art 45), and added the 11th Fundamental Duty.

5. Consider the following statements regarding the procedure for amending the Constitution under Article 368:

1. A bill for the amendment of the Constitution can be introduced by a Minister or a private member and does not require prior permission of the President.
2. There is no provision for holding a joint sitting of both Houses of Parliament if there is a deadlock over the passage of a Constitutional Amendment Bill.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Both statements are correct. Unlike Ordinary Bills, Constitutional Amendment Bills must be passed by each House separately by a special majority; Article 108 (Joint Sitting) does not apply to them.

6. Consider the following statements:

Statement-I: The Preamble was amended for the first and only time in 1976 to include the words 'Socialist', 'Secular', and 'Integrity'.

Statement-II: The Preamble is a part of the Constitution and can be amended under Article 368, provided it does not alter the 'Basic Structure'.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Correct Answer: (b)

Explanation:

Both are true facts established by the Kesavananda Bharati case and the 42nd Amendment. However, the fact that it can be amended (St-II) is not the specific reason why those specific words were added (St-I).

7. A Constitutional Amendment Bill under Article 368 is introduced in the Lok Sabha (Total Strength: 543). If 360 members are present and voting, what is the minimum number of 'Yes' votes required to pass the bill?

- (a) 240
- (b) 272
- (c) 273
- (d) 301

Correct Answer: (c)

Explanation:

A Special Majority requires:

1. **Majority of total membership:** $543 / 2 = 271.5$, so 272.
2. **2/3rd of members present and voting:** $2/3$ times 360 = 240.

The bill must satisfy both. Since 272 is the higher requirement here, and the question asks for support in a house of 543, the absolute majority of 273 (more than 50%) is the effective floor.

8. Consider the following statements regarding the Parliament's power to amend the Constitution:

1. The power to amend the Constitution is a constituent power and is not limited by any provision outside of Part XX.
2. The 'Doctrine of Basic Structure' serves as a judicial limitation on the otherwise plenary amending power of the Parliament.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** While Part XX (Art 368) is the primary source, the amending power is not absolute and is limited by the judicial interpretation of the whole Constitution.
- **Statement 2 is correct:** The Basic Structure doctrine (1973) is the definitive limitation.

9. Which of the following changes were introduced by the 44th Constitutional Amendment Act (1978) regarding National Emergency?

1. Substitution of "internal disturbance" with "armed rebellion."
2. Requirement of a written recommendation from the Cabinet to the President for the proclamation.
3. Enabling the proclamation of emergency for only a specific part of India.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **1 & 2 are correct:** These were safeguards added by the 44th Amendment after the 1975 emergency.
- **3 is incorrect:** The provision to apply emergency to a part of India was added by the 42nd Amendment (1976).

10. Consider the following statements:

Statement I: Following the Minerva Mills case, it is settled that Fundamental Rights and Directive Principles are complementary to each other and neither is intrinsically superior.

Statement II: The Parliament's power to amend the Constitution under Article 368 is itself a part of the Basic Structure and cannot be used to destroy other basic features.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement I and Statement II are correct and Statement II explains Statement I
- (b) Both Statement I and Statement II are correct, but Statement II does not explain Statement I
- (c) Statement I is correct, but Statement II is incorrect

(d) Statement I is not correct, but Statement II is correct

Correct Answer: (b)

Explanation:

Both statements are correct legal positions from the Minerva Mills (1980) judgment. Statement II (about amending power) is a separate legal fact from the harmony and balance between FR and DPSP described in Statement I.

Pathogens and Human Diseases

1. What is the primary biological agent responsible for the Root Wilt Disease (RWD) in coconut palms, characterized by the flaccidity of leaflets?

- (a) Viruses
- (b) Nematodes
- (c) Fungi
- (d) Phytoplasmas

Correct Answer: (d)

Explanation:

Root Wilt Disease of coconut is caused by Phytoplasmas (wall-less prokaryotes). They are specialized bacteria that live in the plant phloem tissue and are transmitted by insect vectors like lace wings and plant mourners. It is a major non-lethal but debilitating disease in South India.

2. Consider the following statements regarding microorganisms:

1. All bacteria are pathogenic in nature and detrimental to human health.
2. Pathogens include a diverse group of organisms such as viruses, bacteria, fungi, and protozoa.
3. Archaea are a major class of microorganisms frequently associated with human infectious diseases.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (a)

Explanation:

• **Statement 1 is incorrect:** Most bacteria are harmless or beneficial (e.g., gut microbiota); only a small fraction are pathogenic.

- **Statement 2 is correct:** These are the primary categories of disease-causing agents.
- **Statement 3 is incorrect:** Interestingly, while Archaea are found in the human body, there are currently no known clear examples of human bacterial pathogens belonging to the Archaea domain.

3. Consider the following human diseases:

1. Tuberculosis
2. Malaria
3. Plague
4. Cholera

How many of the above diseases are caused by bacteria?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (c)

Explanation:

- **Tuberculosis:** Caused by Mycobacterium tuberculosis (Bacteria).
 - **Plague:** Caused by Yersinia pestis (Bacteria).
 - **Cholera:** Caused by Vibrio cholerae (Bacteria).
 - **Malaria:** Caused by Plasmodium parasites, which are Protozoa, not bacteria.

4. Consider the following pairs:

Disease : Causal Agent

1. Filariasis : Helminth Worms
2. Dengue : Virus
3. Chickenpox : Virus
4. Malaria : Protozoa

How many of the pairs given above are correctly matched?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (d)

Explanation:

All pairs are correct. Filariasis is caused by thread-like filarial worms (nematodes). Dengue is caused by the Dengue virus. Chickenpox is caused by the Varicella-zoster virus. Malaria is caused by protozoan parasites of the genus Plasmodium.

5. With reference to human clinical conditions, consider the following:

1. Haemophilia
2. Thalassemia
3. Sickle Cell Anaemia
4. Rheumatoid Arthritis

How many of the diseases given above are categorized as genetic (hereditary) diseases?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (c)

Explanation:

- **Haemophilia, Thalassemia, and Sickle Cell Anaemia** are all hereditary genetic disorders passed from parents to children through genes.
 - **Rheumatoid Arthritis** is an **autoimmune disease** where the immune system attacks the joints; while there may be a genetic predisposition, it is not classified as a "genetic disease" in the same sense as the others.

6. Consider the following diseases:

- I. Kala-Azar
- II. Smallpox
- III. Polio
- IV. Lymphatic Filariasis

How many of the above have been officially declared as Eradicated or Eliminated in India?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (b)

Explanation:

- **Smallpox:** Eradicated globally (and in India) since 1980.
 - **Polio:** India was declared Polio-free by the WHO in 2014.
 - **Kala-Azar and Lymphatic Filariasis:** India has set targets for elimination, but they have **not** been eradicated yet. India recently achieved the target of less than 1 case per 10,000 population in all blocks for Kala-Azar, but official eradication is a different milestone.

7. The Filoviridae family consists of several related viruses that cause severe hemorrhagic fevers. Which of the following belong to this family?

- I. Ebola virus
- II. Marburg virus
- III. Cueva virus
- IV. Zika virus

Select the correct answer using the code below:

- (a) I and II only
- (b) I, II and III only
- (c) I, II and IV only
- (d) I, II, III and IV

Correct Answer: (b)

Explanation:

The family Filoviridae includes the genera Ebolavirus, Marburgvirus, and Cuevavirus. Zika virus belongs to the Flaviviridae family (along with Dengue and Yellow Fever).

8. With reference to communicable diseases, which one of the following statements is correct?

- (a) Tuberculosis is caused by a bacterium that strictly and exclusively affects the pulmonary system (lungs).
- (b) Malaria is a viral infection transmitted to humans via the bite of an infected female Anopheles mosquito.
- (c) Polio is a viral disease that can invade the central nervous system, potentially resulting in total paralysis.
- (d) Dengue fever is transmitted to humans solely through the bite of the female Anopheles mosquito.

Correct Answer: (c)

Explanation:

- is incorrect: TB can affect other parts of the body (Extrapulmonary TB) like kidneys, spine, and brain.
 - (b) is incorrect: Malaria is protozoan, not viral.
 - (d) is incorrect: Dengue is transmitted by Aedes aegypti mosquitoes.

- (c) is correct: The Polio virus attacks the nerve cells of the spinal cord.

9. Which of the following diseases is/are transmitted primarily through a "Vector"?

1. Zika Virus
2. Tuberculosis
3. Japanese Encephalitis
4. Hepatitis B

Select the correct answer using the code below:

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 2 and 3 only
- (d) 1, 3 and 4 only

Correct Answer: (a)

Explanation:

- **Zika and Japanese Encephalitis** are vector-borne (Mosquitoes).
 - **Tuberculosis** is airborne (droplets).
 - **Hepatitis B** is transmitted through infected blood or body fluids (not a vector).

10. Consider the following statements regarding the bacterium Yersinia pestis:

1. It is the causative agent of the Bubonic Plague.
2. It is typically transmitted to humans through the bite of infected rat fleas.
3. It can be treated effectively with modern antibiotics if diagnosed early.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

Yersinia pestis is the bacteria responsible for plague (1). It is a zoonotic bacteria usually found in small mammals and their fleas (2). Unlike viral diseases, bacterial infections like plague respond well to antibiotics (3).

Human Diseases

1. Consider the following statements regarding Messenger RNA (mRNA) vaccines:

1. They are capable of eliciting both innate and adaptive immune responses.
2. They utilize a cell-free process for production, enabling rapid development and large-scale manufacturing.
3. mRNA vaccines possess higher inherent stability and thermotolerance compared to conventional inactivated virus vaccines.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only

(d) 1, 2 and 3

Correct Answer: (a)

Explanation:

• **Statement 1 and 2 are correct:** mRNA vaccines work by providing the genetic code for cells to produce an antigen, triggering a robust immune response (1). Because they are produced via chemical synthesis rather than in cell cultures, they allow for very fast production cycles (2).

- **Statement 3 is incorrect:** A major drawback of mRNA vaccines is their instability. They are highly sensitive to temperature and typically require ultra-cold chain storage (e.g., -70°C for Pfizer) to prevent the mRNA from degrading.

2. Which one of the following conditions is not categorized as an infectious/epidemic disease?

(a) Ebola Virus Disease

(b) Bells Palsy

(c) Cholera

(d) Lyme Disease

Correct Answer: (b)

Explanation:

• **Ebola, Cholera, and Lyme Disease** are all caused by pathogens (viruses, bacteria, and bacteria-carrying ticks respectively) and can spread through populations.

- **Bells Palsy** is a neurological condition causing temporary weakness or paralysis of the facial muscles. It is not a communicable or epidemic disease; it is generally believed to be caused by inflammation of the facial nerve, often linked to viral reactivation (like Herpes) but not spread as an epidemic.

3. The terms SDN-1, SDN-2, and SDN-3 are frequently discussed in scientific literature in the context of:

(a) Biological methods for carbon sequestration.

(b) Targeted genome editing in organisms using Site-Directed Nucleases.

(c) Developing next-generation antimicrobial resistance coatings.

(d) Enhancing the efficiency of Third-Generation Biofuels.

Correct Answer: (b)

Explanation:

SDN stands for Site-Directed Nucleases. These are categories of gene editing (like CRISPR).

- **SDN-1** involves small insertions/deletions without external DNA.
- **SDN-2** uses a small repair template to edit DNA.
- **SDN-3** involves inserting large segments of foreign DNA.

The Government of India recently exempted SDN-1 and SDN-2 from the stringent GM regulations applied to transgenic crops.

4. The National Centre for Disease Informatics and Research (NCDIR), which maintains the National Cancer Registry Programme, operates under the administrative aegis of:

(a) Ministry of Health and Family Welfare

(b) Indian Council of Medical Research (ICMR)

(c) NITI Aayog

(d) Council of Scientific & Industrial Research (CSIR)

Correct Answer: (b)

Explanation:

The NCDIR is a constituent institute of the Indian Council of Medical Research (ICMR). It is primarily involved in data informatics regarding cancer, diabetes, and cardiovascular diseases in India.

5. Which of the following statements best describes the phenomenon of Brood Parasitism?

- (a) A virus utilizing the hosts cellular machinery to synthesize its own viral proteins.
- (b) An organism that feeds exclusively on the dead and decaying remains of its host.
- (c) A bird species that relies on others to raise its young by laying eggs in their nests.
- (d) A plant parasite that attaches to a host only for structural support without taking nutrients.

Correct Answer: (c)

Explanation:

Brood parasitism is a type of social parasitism. A classic example is the Cuckoo (Koel) and the Crow. The cuckoo lays its eggs in the crows nest, and the crow (the host) incubates them and feeds the hatchlings, often at the expense of its own biological offspring.

6. The term Evil Quartet is used by ecologists to describe the four major drivers of which of the following?

- (a) Global Climate Change
- (b) Biodiversity Loss and Extinction
- (c) Desertification of Arid Lands
- (d) Marine Plastic Pollution

Correct Answer: (b)

Explanation:

The Evil Quartet identifies the four primary causes of biodiversity loss:

1. Habitat Loss and Fragmentation (the most important).
2. Over-exploitation.
3. Alien Species Invasions.
4. Co-extinctions.

7. Consider the following statements regarding viruses:

1. Certain viruses possess the ability to cross the blood-brain barrier and directly invade Central Nervous System (CNS) tissues.
2. Bacteriophages (viruses that infect bacteria) typically possess double-stranded DNA as their genetic material.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Viruses like Rabies, Polio, and Japanese Encephalitis are neurotropic, meaning they can directly infect the CNS.
- **Statement 2 is correct:** Most known bacteriophages have dsDNA genomes, although some smaller groups carry ssDNA or RNA.

8. Consider the following diseases/pathogens:

- I. Gonorrhoea
- II. Tuberculosis
- III. Hepatitis B
- IV. Human Immunodeficiency Virus (HIV)
- V. Syphilis

How many of the above are classified as Sexually Transmitted Infections (STIs)?

- (a) Only two
- (b) Only three
- (c) Only four
- (d) All the five

Correct Answer: (c)

Explanation:

- Gonorrhoea, Hepatitis B, HIV, and Syphilis (not in the list but implied in STIs) are all STIs.
 - Tuberculosis (II) is an airborne respiratory disease spread through droplets and is not classified as an STI.
 - *Note:* Pyelonephritis (from your original list) is a kidney infection, usually a complication of a UTI, not primarily an STI.

9. Consider the following table regarding vitamins:

Vitamin	Primary Source	Deficiency Disease
I. Vitamin A	Dairy & Carrots	Night Blindness
II. Vitamin B2	Leafy Vegetables	Skin lesions (Ariboflavinosis)
III. Vitamin K	Green Vegetables	Impaired Blood Clotting
IV. Vitamin D	Sunlight & Fish	Rickets

In how many of the above rows is the information correctly matched?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All the four

Correct Answer: (c)

Explanation:

- Rows I, II, and IV are correctly matched.
 - Row III is incorrectly matched in your provided text: Vitamin K deficiency leads to excessive bleeding (haemorrhage) due to non-clotting of blood, not Anaemia (which is usually associated with Iron, Vitamin B12, or Folic Acid).

10. Consider the following modes of transmission with regard to the Human Immunodeficiency Virus (HIV):

1. Transfusion of contaminated blood or blood products.
2. Transmission from mother to child via breast milk.
3. Sharing utensils or food with an HIV-positive person.

In how many of the above ways can HIV be transmitted from one person to another?

- (a) Only one
- (b) Only two
- (c) All the three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 and 2 are correct:** HIV is transmitted through specific bodily fluids: blood, semen, vaginal fluids, and breast milk.
 - **Statement 3 is incorrect:** HIV is not transmitted through casual contact such as sharing food, water, utensils, coughing, sneezing, or hugging. The virus does not survive long outside the human body.

Diseases and Impacts

1. Consider the following statements regarding Hepatitis B:

1. The Hepatitis B virus (HBV) is significantly more resilient and infectious than the Human Immunodeficiency Virus (HIV).
2. Chronic infection with Hepatitis B is a primary leading cause of hepatocellular carcinoma (liver cancer).

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Hepatitis B is highly contagious—estimated to be 50 to 100 times more infectious than HIV. It can survive outside the body for at least 7 days.
 - **Statement 2 is correct:** Long-term (chronic) Hepatitis B causes liver inflammation that can lead to cirrhosis and eventually liver cancer.

2. Regarding the H1N1 virus (Swine Flu), consider the following statements:

1. Antiviral drugs, rather than antibiotics, form the primary line of medical treatment for the infection.
2. Culling of the entire pig population in an epidemic area is the mandatory protocol for preventing the spread of the virus to humans.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2

(d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

• **Statement 1 is correct:** H1N1 is a virus; antibiotics only treat bacterial infections. Antivirals like Oseltamivir (Tamiflu) are used for treatment.

- **Statement 2 is incorrect:** Swine flu is primarily spread through human-to-human contact. While it originated in pigs, mass culling is generally used for Bird Flu (Avian Influenza) rather than standard seasonal Swine Flu outbreaks.

3. With reference to Dengue fever, consider the following statements:

1. It is a viral disease primarily transmitted by the *Aedes aegypti* mosquito.
2. Retro-orbital pain (pain behind the eyes) and hemorrhagic manifestations like bleeding from gums are characteristic clinical symptoms.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

• **Statement 1 is correct:** Dengue is caused by the Dengue Virus (DENV), not a protozoan.

- **Statement 2 is correct:** Breakbone fever is known for severe muscle/joint pain, pain behind the eyes (retro-orbital), and in severe cases (Dengue Hemorrhagic Fever), bleeding from the nose or gums.

4. Which of the following diseases affecting milching animals are classified as infectious?

1. Foot and Mouth Disease
2. Anthrax
3. Black Quarter
4. Cowpox

Select the correct answer using the code given below:

- (a) 1 and 2 only
(b) 2, 3 and 4 only
(c) 1 and 4 only
(d) 1, 2, 3 and 4

Correct Answer: (d)

Explanation:

All four are infectious. Foot and Mouth Disease and Cowpox are viral; Anthrax and Black Quarter (Blackleg) are highly infectious bacterial diseases.

5. Which of the following pairs is correctly matched?

- (a) Tuberculosis and Plague: Viral Diseases
(b) AIDS and Syphilis: Hereditary Disorders
(c) Hemophilia and Color Blindness: Sex-linked Recessive Disorders
(d) Diphtheria and Pneumonia: Protozoan Diseases

Correct Answer: (c)

Explanation:

- Hemophilia and Color Blindness are classic X-linked genetic disorders.
 - TB and Plague are bacterial. Syphilis is bacterial, but AIDS is viral. Diphtheria and Pneumonia are bacterial.

6. Consider the following statements:

1. Viruses are capable of surviving and remaining infective in deep ocean waters.
2. Certain viruses, known as bacteriophages, specifically target and infect bacterial cells.
3. Viruses can manipulate the cellular transcriptional machinery of a host to replicate their own genome.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Marine viruses are the most abundant biological entities in the ocean.
 - **Statement 2 is correct:** Bacteriophages are viruses that eat bacteria.
 - **Statement 3 is correct:** Viruses lack their own machinery; they hijack the host's transcription and translation systems to produce viral proteins.

7. Which of the following statements regarding the adaptability of microorganisms is/are correct?

1. Some thermophilic microorganisms can survive and reproduce in environments exceeding 100°C.
2. Certain acidophilic microorganisms can thrive in environments with a pH level as low as 1 or 2.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Hyperthermophiles (mostly Archaea) thrive in hydrothermal vents where temperatures exceed boiling point.
 - **Statement 2 is correct:** Acidophiles grow in highly acidic conditions like volcanic pools or mine drainage.

8. Consider the following statements regarding the human immune system:

1. B-cells are primarily responsible for humoral immunity by producing antibodies that circulate in blood plasma.
2. T-cells directly attack infected cells and coordinate the overall immune response also produce antibodies.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 correct: B-cells:** Mature in Bone marrow; produce antibodies (Humoral).
- **Statement 2 incorrect: T-cells:** Mature in Thymus; responsible for Cell-mediated immunity. T-cells directly attack infected cells and coordinate the overall immune response but do not produce antibodies.

9. With reference to Probiotics, consider the following statements:

1. They are live microorganisms consisting of specific strains of both bacteria and yeasts.
2. They are laboratory-synthesized organisms that do not naturally inhabit the human body.
3. They aid in the breakdown of lactose and support digestive health.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 & 3 are correct:** Probiotics often include *Lactobacillus* (bacteria) and *Saccharomyces boulardii* (yeast). They help digest milk sugars.
 - **Statement 2 is incorrect:** Probiotics are good microbes similar to those already living naturally in the human gut.

10. In a primary ecological succession on a bare rocky surface, which of the following organisms are most likely to be found surviving without any soil?

1. Lichens
2. Mosses
3. Ferns
4. Mushrooms

Select the correct answer using the code given below:

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 4 only

Correct Answer: (b)

Explanation:

- **Lichens** are the ultimate pioneer species that can grow on bare rock by secreting acids to break down the minerals.
 - **Mosses** typically follow lichens.
 - **Ferns** usually require at least a thin layer of soil. Mushrooms are fungi that require organic matter (decomposing material) to survive, which is not found on bare rock.

Biological And Health Sciences

1. Consider the following statements:

1. Adenoviruses possess double-stranded DNA genomes, whereas Retroviruses possess double-stranded RNA genomes.
2. The common cold can be caused by an Adenovirus, while AIDS is caused by a Retrovirus.
3. Retroviruses use the enzyme reverse transcriptase to integrate their genetic material into the host's DNA.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

• **Statement 1 is incorrect:** Adenoviruses possess double-stranded DNA genomes, whereas Retroviruses possess single-stranded RNA genomes. Unlike the original prompt's incorrect premise, Adenoviruses are dsDNA viruses. Retroviruses (like HIV) are ssRNA viruses.

- **Statement 2 is correct:** Adenoviruses are a common cause of respiratory infections (cold); HIV is a classic retrovirus.
- **Statement 3 is correct:** This is the defining characteristic of retroviruses, allowing them to turn RNA into DNA within a host cell.

2. Regarding the structural differences between plant and animal cells, consider the following statements:

1. Plant cells possess a rigid cell wall composed of plasma, which is absent in animal cells.
2. Both plant and animal cells possess a plasma membrane that regulates the entry and exit of substances.
3. Mature plant cells typically contain a single, large central vacuole, whereas animal cells contain multiple smaller vacuoles.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

Statement 1 is incorrect: Plant cells possess a rigid cell wall composed of cellulose, which is absent in animal cells.

Statement 2&3 are correct:

- **Plasma Membrane (Both):** Acts as a selectively permeable barrier, controlling which substances (nutrients, waste) enter or exit both plant and animal cells.
- **Vacuole Difference (Plant vs. Animal):** Plant cells use one large central vacuole for storage and turgor pressure (rigidity), while animal cells typically contain smaller, temporary vacuoles for storage and transport.

3. Consider the following statements regarding Multidrug-Resistant (MDR) and Extensively Drug-Resistant (XDR) Tuberculosis:

1. MDR-TB is characterized by resistance to the two most powerful first-line drugs: Isoniazid and Rifampicin.
2. XDR-TB involves resistance to first-line drugs plus any fluoroquinolone and at least one of the three second-line injectable drugs.

3. The emergence of MDR and XDR strains is primarily driven by the misuse and mismanagement of antibiotic treatments.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

- **Statement 1 is correct: (Multidrug-Resistant TB):** This type of TB is resistant to at least Isoniazid and Rifampicin, the two most powerful first-line drugs used to treat standard tuberculosis. Because these standard medicines fail, treatment requires longer, more complex, and more toxic second-line regimens.
- **Statement 2 is correct: (Extensively Drug-Resistant TB):** A more dangerous form of MDR-TB. It involves resistance to the first-line drugs (Isoniazid/Rifampicin), plus any member of the fluoroquinolone family, and at least one of the three second-line injectable drugs (amikacin, kanamycin, or capreomycin).
- **Statement 3 is correct: Cause of Resistance:** The primary driver of these resistant strains is human error, specifically the misuse, mismanagement, or premature interruption of treatment regimens. Poor quality drugs or incorrect dosages allow the bacteria to survive and develop genetic mutations that resist medication.

4. Consider the following statements regarding Aflatoxins:

1. They are highly toxic compounds primarily produced by certain species of b, such acteria as *Aspergillus flavus*.
2. Normal cooking processes, such as boiling or roasting, are generally insufficient to destroy these toxins in contaminated grains.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** Aflatoxins are potent poisons (mycotoxins) produced by certain molds, most notably *Aspergillus flavus*, which grow on crops like corn, peanuts, and nuts, particularly in warm, humid conditions. They are known to be strong carcinogens (causing liver cancer) and can cause acute health issues or death in both humans and animals.
- **Statement 2 is correct:** Aflatoxins are chemically stable and thermostable, meaning they can withstand high temperatures. Normal cooking methods—such as boiling, roasting, or steaming—do not destroy these toxins, so even cooked foods made from contaminated grains remain dangerous.

5. Consider the following pairs of plants and their common propagation methods:

1. Sweet Orange : Grafting
2. Jasmine : Layering
3. Banana : Stem Cuttings

Which of the pairs given above is/are correctly matched?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

Sweet orange is commonly grafted onto hardy rootstocks. Jasmine is frequently propagated by bending a branch to the ground (layering). Banana, however, is propagated via rhizomes or suckers, not stem cuttings.

6. Which of the following statements are correct?

1. Caffeine acts as a diuretic by increasing the excretion of water from the body.
2. Citric acid is commonly added to soft drinks to provide a tart flavor and act as a preservative.
3. Vitamin C (Ascorbic acid) is essential for the synthesis of collagen, which is vital for skin and bone health.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

All are correct. Citric acid cannot substitute for Ascorbic acid in nutrition.

7. Consider the following statements regarding Adult Stem Cells (ASCs) and Embryonic Stem Cells (ESCs):

1. ESCs are pluripotent, meaning they can differentiate into nearly any cell type in the body.
2. ASCs are generally multipotent, with their differentiation potential typically limited to cell types of their tissue of origin.
3. ESCs are derived from the inner cell mass of a blastocyst, while ASCs exist in various tissues throughout an individual's life.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (c)

Explanation:

All statements correctly differentiate the two. ESCs have the highest potential (pluripotency), while ASCs act as a repair system for specific tissues (multipotency).

8. With reference to Synthetic Embryo Models (Human embryo models without sperm or eggs), consider the following statements:

1. These models are created using pluripotent stem cells that are reprogrammed to mimic the stages of early embryonic development.

- Such models are currently intended for research into early pregnancy loss and genetic disorders rather than for reproductive cloning.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Scientists use stem cells to recreate structures that resemble post-implantation embryos to study the black box of early human development without using actual biological embryos.

9. Which of the following statements correctly differentiates between saturated and unsaturated fatty acids?

- Saturated fatty acids contain only single bonds between carbon atoms, allowing them to pack tightly and remain solid at room temperature.
- Unsaturated fatty acids contain one or more double bonds, which creates kinks in the chain, typically keeping them liquid at room temperature.
- Trans-fats are a type of unsaturated fat that has been industrially hydrogenated to behave like saturated fats.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

All are correct. Butter and ghee are saturated (solid); oils are unsaturated (liquid). Trans-fats are chemically modified unsaturated fats used to increase shelf life.

10. With reference to the components of human blood, consider the following statements:

- Plasma, the liquid component, accounts for approximately 55% of the total blood volume.
- Red Blood Cells (Erythrocytes) lack a nucleus at maturity to maximize space for hemoglobin.
- Platelets (Thrombocytes) are the primary cell fragments responsible for blood coagulation (clotting).

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Plasma is >50%.
 - **Statement 2 is correct:** Human RBCs are enucleated.
 - **Statement 3 is correct:** White blood cells (from the original prompt) are for immunity; Platelets are for clotting.

Biological And Health Sciences Miscellaneous

1. Consider the following statements regarding the physiological effects of vitamin deficiencies:

1. The non-functioning of lachrymal (tear) glands is a significant symptom associated with Vitamin A deficiency.
2. Vitamin B1 deficiency can manifest as heart enlargement and gastrointestinal disturbances.
3. Vitamin C deficiency often results in pain in the joints and muscles due to impaired collagen synthesis.
4. Deficiency of Vitamin D is associated with an increased parathyroid hormone (PTH).

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2, 3 and 4 only
- (c) 1, 2 and 3 only
- (d) 1, 2, 3 and 4

Correct Answer: (c)

Explanation:

• **Statement 1 correct:** Vitamin A is vital for the health of epithelial tissues; deficiency leads to Xerophthalmia, where lachrymal glands stop producing tears.

- **Statement 2 correct:** Deficiency of B1 (Thiamine) causes Beriberi, which can be wet (affecting the heart) or dry (affecting the nervous system).
- **Statement 3 correct:** Vitamin C (Scurvy) causes muscle and joint pain.
- **Statement 4 incorrect:** Vitamin D deficiency is primarily associated with elevated levels of parathyroid hormone (PTH). Low vitamin D reduces calcium absorption, triggering the parathyroid glands to produce excess PTH, a condition known as secondary hyperparathyroidism. Vitamin D is crucial for calcium absorption; its lack causes the body to lose calcium through the kidneys.

2. Which of the following organelles in a eukaryotic cell contains its own DNA and is capable of semi-autonomous replication, apart from the nucleus?

- (a) Centriole
- (b) Golgi apparatus
- (c) Lysosome
- (d) Mitochondrion

Correct Answer: (d)

Explanation:

Mitochondria and Chloroplasts (in plants) contain their own circular DNA and ribosomes, supporting the endosymbiotic theory. This is known as extranuclear or cytoplasmic DNA.

3. With reference to the circulatory system in a healthy human, which one of the following statements is correct?

- (a) Veins are significantly fewer in number and hold a smaller volume of blood compared to arteries.
- (b) Formed elements (blood cells) constitute approximately 70% of the total blood volume.
- (c) White Blood Cells (WBCs) are produced exclusively within the lymph nodes.
- (d) In a normal blood count, the number of platelets is significantly higher than the number of White Blood Cells.

Correct Answer: (d)

Explanation:

- (a) **is incorrect:** Veins are more numerous and act as blood reservoirs, holding about 65% of the body's blood.
 (b) **is incorrect:** Blood cells constitute about 45%; Plasma is 55%.
 (c) **is incorrect:** WBCs are produced in the bone marrow and matured in various lymphoid organs.
 (d) **is correct:** A normal adult has 1.5–4.5 lakh platelets per microliter, whereas WBC count is only 4,000–11,000.

4. With reference to the functioning of the human kidney, consider the following statements:

- Once the nitrogenous waste is removed, the filtered (cleaner) blood is returned to the systemic circulation via the renal artery.
- In the nephron, essential substances like glucose are reabsorbed from the filtrate in the tubules and returned to the blood.

Which of the statements given above is/are correct?

- (a) 1 only
 (b) 2 only
 (c) Both 1 and 2
 (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- Statement 1 is incorrect:** The renal artery brings unclean blood to the kidney. Filtered, cleaner blood leaves the kidney through the Renal Vein.
 - Statement 2 is correct:** Selective reabsorption occurs in the Proximal Convoluted Tubule (PCT), where 100% of glucose is typically reabsorbed back into the peritubular capillaries.

5. Match List I (Substance) with List II (Physiological Role):

List I (Substance)	List II (Role)
I. Ptyalin	A) Converts Angiotensinogen to Angiotensin
II. Pepsin	B) Digests Starch
III. Renin	C) Digests Proteins
IV. Oxytocin	D) Induces Smooth Muscle Contraction

Codes:

- (a) I-B, II-C, III-A, IV-D
 (b) I-C, II-A, III-B, IV-D
 (c) I-B, II-A, III-C, IV-D
 (d) I-D, II-C, III-A, IV-B

Correct Answer: (a)

Explanation:

Prelims Marathon MCQs Compilation April 2026

Ptyalin (Salivary Amylase) breaks down starch. Pepsin breaks down proteins in the stomach. Renin (enzyme from kidneys) is part of the blood pressure regulation system. Oxytocin induces labor and milk ejection by contracting smooth muscles.

6. Match List I (Drug/Chemical) with List II (Common Use):

List I (Chemical)	List II (Use)
I. Atropine	A) Local Anaesthesia
II. Ether	B) Relief in Angina (Heart trouble)
III. Nitroglycerine	C) Dilation of the Pupil
IV. Pyrethrin	D) Mosquito/Pest Control

Codes:

- (a) I-C, II-A, III-B, IV-D
- (b) I-A, II-C, III-B, IV-D
- (c) I-B, II-D, III-A, IV-C
- (d) I-C, II-A, III-D, IV-B

Correct Answer: (a)

Explanation:

Atropine dilates the pupil (mydriasis). Ether was a classic general anaesthetic. Nitroglycerine is a vasodilator used for heart pain. Pyrethrin is a natural insecticide derived from Chrysanthemums.

7. Match List I with List II regarding plant parts:

List I	List II (Botanical Part)
I. Fruit	A) Ovule
II. Seed	B) Leaf
III. Wood	C) Stem (Secondary Xylem)
IV. Starch	D) Mature Ovary

Codes:

- (a) I-D, II-A, III-C, IV-B
- (b) I-B, II-A, III-C, IV-D
- (c) I-D, II-C, III-A, IV-B
- (d) I-A, II-D, III-C, IV-B

Correct Answer: (a)

Explanation:

A fruit is a ripened ovary; a seed is a fertilized ovule. Wood is technically the secondary xylem of a stem. Starch is the primary storage polysaccharide synthesized in leaves (and stored in various parts).

8. Living organisms require various elements for survival. Which of the following groups consists exclusively of Macronutrients in the human body?

- (a) Potassium, Manganese, Molybdenum, Calcium
- (b) Potassium, Sodium, Magnesium, Calcium
- (c) Sodium, Magnesium, Copper, Manganese
- (d) Iron, Zinc, Copper, Molybdenum

Correct Answer: (b)

Explanation:

Macronutrients include Carbon, Hydrogen, Oxygen, Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, and Sodium. Elements like Manganese, Molybdenum, Copper, and Zinc are Micronutrients (trace elements).

MCQ 9: Elemental Composition of Proteins

Proteins are complex organic compounds. Which of the following elements are present in the basic molecular structure of *all* proteins?

- 1. Carbon
- 2. Hydrogen
- 3. Oxygen
- 4. Nitrogen

Select the correct answer using the code given below:

- (a) 1 and 4 only
- (b) 1, 2 and 4 only
- (c) 1, 3 and 4 only
- (d) 1, 2, 3 and 4

Correct Answer: (d)

Explanation: All proteins are polymers of amino acids. An amino acid essentially contains an amine group (NH₂), a carboxyl group (-COOH), and a side chain, all of which are built using Carbon, Hydrogen, Oxygen, and Nitrogen.

10. Which of the following correctly describes the primary role of Adenosine Triphosphate (ATP) in a living cell?

- (a) It serves as the primary genetic material for inheritance.
- (b) It acts as the energy currency, transferring energy for cellular processes.
- (c) It is the main structural component of the cell wall.
- (d) It is an enzyme responsible for protein synthesis.

Correct Answer: (b)

Explanation:

ATP is the molecule that captures chemical energy obtained from the breakdown of food molecules and releases it to fuel other cellular processes.

Life Science Miscellaneous

1. With reference to the components of human blood, consider the following statements:

1. Plasma, the straw-colored liquid component, constitutes approximately 55% of the total blood volume.
2. Red blood cells (Erythrocytes) contain the iron-rich protein hemoglobin, which is essential for the transport of oxygen.
3. White blood cells (Leukocytes) are primarily responsible for the coagulation of blood at the site of an injury.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 and 2 are correct:** Plasma is the major component (>50%) and RBCs carry oxygen via hemoglobin.
- **Statement 3 is incorrect:** White blood cells are part of the immune system. The cells primarily responsible for blood clotting (coagulation) are Platelets (Thrombocytes).

2. With reference to the human immune system, what does the term Innate Immunity refer to?

- (a) An antigen-specific defense mechanism developed after exposure to a pathogen or vaccine.
- (b) The first line of defense that provides immediate, non-specific protection against a broad range of pathogens.
- (c) A type of immunological memory that allows for a rapid response upon a second encounter with a specific virus.
- (d) Immunity mediated exclusively by specialized B-lymphocytes and T-lymphocytes.

Correct Answer: (b)

Explanation:

Innate immunity is present from birth. It includes physical barriers (skin, mucus) and non-specific cells (macrophages) that respond immediately to any foreign invader, unlike Adaptive Immunity, which is specific and acquired over time.

3. Consider the following statements regarding biomolecules and human physiology:

1. Carbohydrates serve as both immediate fuel and long-term energy reserves in the form of glycogen.
2. All enzymes known to biology are globular proteins in their chemical nature.
3. Certain symbiotic microorganisms in the human gut are responsible for synthesizing vitamins such as Vitamin K and B12.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only

(d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Glucose provides immediate energy; glycogen (in liver/muscles) acts as a reserve.
 - **Statement 2 is incorrect:** While most enzymes are proteins, certain RNA molecules called Ribozymes also act as enzymes.
 - **Statement 3 is correct:** Gut flora contribute significantly to our nutritional needs by synthesizing essential vitamins.

4. Consider the following statements regarding prokaryotic organisms:

1. They lack membrane-bound organelles such as mitochondria and the Golgi apparatus.
2. Their genetic material is localized in a region called the nucleoid, which is not enclosed by a nuclear envelope.
3. Some prokaryotes, such as certain bacteria, function as obligate intracellular parasites.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

Prokaryotes (Bacteria, Archaea) are characterized by the lack of a true nucleus. Some, like *Chlamydia* or *Rickettsia*, can only replicate inside a host cell, making them obligate intracellular parasites.

5. Bioluminescence is the production and emission of light by a living organism. This phenomenon primarily involves the biochemical oxidation of which of the following substances?

- (a) Luciferin
- (b) Bilirubin
- (c) Melanin
- (d) Lignin

Correct Answer: (a)

Explanation:

Commonly found in marine organisms like Ctenophores (comb jellies) and fireflies, where chemical energy is converted to light through the enzyme luciferase acting on luciferin. It is a key feature of the phylum Ctenophora (e.g., *Pleurobrachia* and *Ctenoplana*). Bioluminescence occurs when the pigment Luciferin reacts with oxygen, often facilitated by the enzyme luciferase. Bilirubin is a bile pigment, Melanin gives skin color, and Lignin is a structural polymer in plants.

6. With reference to the process of Transcription in eukaryotic cells, consider the following statements:

1. It involves the synthesis of an RNA molecule using a DNA strand as a template.
2. In eukaryotic cells, this process takes place primarily within the nucleus.
3. The enzyme RNA polymerase is the primary catalyst required for the synthesis of the RNA strand.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only

- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

Transcription is the first step of gene expression where DNA is copied into RNA. Since DNA is housed in the nucleus in eukaryotes, transcription happens there. RNA polymerase is the enzyme that reads the DNA and builds the RNA.

7. The pH scale is used to measure the hydrogen ion concentration in a solution. Arrange the following substances in decreasing order of their pH (from most basic to most acidic):

1. Lemon Juice
2. Milk of Magnesia
3. Caustic Soda (Sodium Hydroxide)

Select the correct answer using the code given below:

- (a) 3-1-2
- (b) 3-2-1
- (c) 2-1-3
- (d) 1-2-3

Correct Answer: (b)

Explanation:

- **Caustic Soda** is a strong base (pH approx 14).
 - **Milk of Magnesia** is a mild base (pH approx 10.5).
 - **Lemon Juice** is acidic (pH approx 2-3).

Therefore, the decreasing order is 3 (Caustic Soda) > 2 (Milk of Magnesia) > 1 (Lemon Juice).

8. Consider the following statements regarding biological reproduction:

1. Asexual reproduction typically produces clones as it does not involve the fusion of gametes.
2. Sexual reproduction is a major driver of genetic diversity due to the shuffling of genes during meiosis.
3. Multicellularity is an absolute prerequisite for sexual reproduction.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 and 2 are correct:** Asexual reproduction is efficient but lacks variation; sexual reproduction creates diversity.
 - **Statement 3 is incorrect:** Many unicellular organisms (like certain protists and fungi) can reproduce sexually or undergo genetic exchange.

9. Which of the following specific cell types is responsible for the secretion of Insulin in the human body?

- (a) Alpha cells of the Islets of Langerhans
- (b) Beta cells of the Islets of Langerhans

- (c) Hepatocytes of the liver
- (d) Cells of the Adrenal Cortex

Correct Answer: (b)

Explanation:

The pancreas contains clusters called Islets of Langerhans. Beta cells produce Insulin (lowers blood sugar), while Alpha cells produce Glucagon (raises blood sugar).

10. In the context of aerobic respiration, in which part of the eukaryotic cell does the majority of ATP (Adenosine Triphosphate) synthesis occur?

- (a) Nucleus
- (b) Ribosomes
- (c) Mitochondria
- (d) Lysosomes

Correct Answer: (c)

Explanation:

Mitochondria are known as the powerhouse of the cell because they are the site of the Krebs cycle and the electron transport chain, which generate the bulk of the cell's ATP through aerobic respiration.

Biological And Health Sciences Miscellaneous

1. With reference to the components of human blood, consider the following statements:

1. Plasma, the straw-colored liquid component, constitutes approximately 55% of the total blood volume.
2. Red blood cells (Erythrocytes) contain the iron-rich protein hemoglobin, which is essential for the transport of oxygen.
3. White blood cells (Leukocytes) are primarily responsible for the coagulation of blood at the site of an injury.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

• **Statement 1 and 2 are correct:** Plasma is the major component (>50%) and RBCs carry oxygen via hemoglobin.

- **Statement 3 is incorrect:** White blood cells are part of the immune system. The cells primarily responsible for blood clotting (coagulation) are Platelets (Thrombocytes).

2. With reference to the human immune system, what does the term Innate Immunity refer to?

- (a) An antigen-specific defense mechanism developed after exposure to a pathogen or vaccine.
- (b) The first line of defense that provides immediate, non-specific protection against a broad range of pathogens.
- (c) A type of immunological memory that allows for a rapid response upon a second encounter with a specific virus.
- (d) Immunity mediated exclusively by specialized B-lymphocytes and T-lymphocytes.

Correct Answer: (b)

Explanation:

Innate immunity is present from birth. It includes physical barriers (skin, mucus) and non-specific cells (macrophages) that respond immediately to any foreign invader, unlike Adaptive Immunity, which is specific and acquired over time.

3. Consider the following statements regarding biomolecules and human physiology:

1. Carbohydrates serve as both immediate fuel and long-term energy reserves in the form of glycogen.
2. All enzymes known to biology are globular proteins in their chemical nature.
3. Certain symbiotic microorganisms in the human gut are responsible for synthesizing vitamins such as Vitamin K and B12.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Glucose provides immediate energy; glycogen (in liver/muscles) acts as a reserve.
 - **Statement 2 is incorrect:** While most enzymes are proteins, certain RNA molecules called Ribozymes also act as enzymes.
 - **Statement 3 is correct:** Gut flora contribute significantly to our nutritional needs by synthesizing essential vitamins.

4. Consider the following statements regarding prokaryotic organisms:

1. They lack membrane-bound organelles such as mitochondria and the Golgi apparatus.
2. Their genetic material is localized in a region called the nucleoid, which is not enclosed by a nuclear envelope.
3. Some prokaryotes, such as certain bacteria, function as obligate intracellular parasites.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

Prokaryotes (Bacteria, Archaea) are characterized by the lack of a true nucleus. Some, like *Chlamydia* or *Rickettsia*, can only replicate inside a host cell, making them obligate intracellular parasites.

5. Bioluminescence is the production and emission of light by a living organism. This phenomenon primarily involves the biochemical oxidation of which of the following substances?

- (a) Luciferin
- (b) Bilirubin
- (c) Melanin
- (d) Lignin

Correct Answer: (a)

Explanation:

Commonly found in marine organisms like Ctenophores (comb jellies) and fireflies, where chemical energy is converted to light through the enzyme luciferase acting on luciferin. It is a key feature of the phylum Ctenophora (e.g., *Pleurobrachia* and *Ctenoplana*). Bioluminescence occurs when the pigment Luciferin reacts with oxygen, often facilitated by the enzyme luciferase. Bilirubin is a bile pigment, Melanin gives skin color, and Lignin is a structural polymer in plants.

6. With reference to the process of Transcription in eukaryotic cells, consider the following statements:

1. It involves the synthesis of an RNA molecule using a DNA strand as a template.
2. In eukaryotic cells, this process takes place primarily within the nucleus.
3. The enzyme RNA polymerase is the primary catalyst required for the synthesis of the RNA strand.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

Transcription is the first step of gene expression where DNA is copied into RNA. Since DNA is housed in the nucleus in eukaryotes, transcription happens there. RNA polymerase is the enzyme that reads the DNA and builds the RNA.

7. The pH scale is used to measure the hydrogen ion concentration in a solution. Arrange the following substances in decreasing order of their pH (from most basic to most acidic):

1. Lemon Juice
2. Milk of Magnesia
3. Caustic Soda (Sodium Hydroxide)

Select the correct answer using the code given below:

- (a) 3-1-2
- (b) 3-2-1
- (c) 2-1-3
- (d) 1-2-3

Correct Answer: (b)

Explanation:

- **Caustic Soda** is a strong base (pH approx 14).
- **Milk of Magnesia** is a mild base (pH approx 10.5).
- **Lemon Juice** is acidic (pH approx 2-3).

Therefore, the decreasing order is 3 (Caustic Soda) > 2 (Milk of Magnesia) > 1 (Lemon Juice).

8. Consider the following statements regarding biological reproduction:

1. Asexual reproduction typically produces clones as it does not involve the fusion of gametes.
2. Sexual reproduction is a major driver of genetic diversity due to the shuffling of genes during meiosis.
3. Multicellularity is an absolute prerequisite for sexual reproduction.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 and 2 are correct:** Asexual reproduction is efficient but lacks variation; sexual reproduction creates diversity.
 - **Statement 3 is incorrect:** Many unicellular organisms (like certain protists and fungi) can reproduce sexually or undergo genetic exchange.

9. Which of the following specific cell types is responsible for the secretion of Insulin in the human body?

- (a) Alpha cells of the Islets of Langerhans
- (b) Beta cells of the Islets of Langerhans
- (c) Hepatocytes of the liver
- (d) Cells of the Adrenal Cortex

Correct Answer: (b)

Explanation:

The pancreas contains clusters called Islets of Langerhans. Beta cells produce Insulin (lowers blood sugar), while Alpha cells produce Glucagon (raises blood sugar).

10. In the context of aerobic respiration, in which part of the eukaryotic cell does the majority of ATP (Adenosine Triphosphate) synthesis occur?

- (a) Nucleus
- (b) Ribosomes
- (c) Mitochondria
- (d) Lysosomes

Correct Answer: (c)

Explanation:

Mitochondria are known as the powerhouse of the cell because they are the site of the Krebs cycle and the electron transport chain, which generate the bulk of the cell's ATP through aerobic respiration.

Cells and Tissues

1. Consider the following statements regarding the cell wall:

1. It is a rigid, non-living structure located outside the plasma membrane in plant cells and fungi.
2. It provides mechanical strength and structural support to the cell, protecting it against osmotic pressure.
3. It serves as the primary metabolic gatekeeper, controlling the selective permeability of all ions and organic molecules into the cytoplasm.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three

(d) None

Correct Answer: (b)

Explanation:

- **Statements 1 and 2 are correct:** The cell wall is a structural layer that provides protection and rigidity.
 - **Statement 3 is incorrect:** The cell wall is generally permeable to most small molecules. It is the Plasma Membrane (cell membrane) that is selectively permeable and controls the entry and exit of specific substances.

2. Consider the following pairs regarding the types of immunity and their components:

1. Physiological Barrier: Skin and Mucous membranes
2. Cellular Defence: Macrophages and Natural Killer cells
3. Chemical Mediators: Antibodies (Humoral immunity)

Which of the pairs given above are correctly matched?

- (a) 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1 and 2 only

Correct Answer: (b)

Explanation:

- **Pair 1 is incorrectly matched:** Skin is a Physical/Anatomical barrier. Physiological barriers include body temperature, pH of the stomach, and tears.
 - **Pair 2 is correctly matched:** Macrophages are specialized cells that engulf and destroy pathogens.
 - **Pair 3 is correctly matched:** Antibodies are proteins (chemical mediators) that neutralize pathogens in body fluids.

3. With reference to Thrombectomy consider the following statements:

1. It is a minimally invasive surgical procedure specifically designed to remove a blood clot (thrombus) from a blood vessel.
2. It is considered the gold-standard emergency treatment for Hemorrhagic strokes caused by ruptured blood vessels.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Thrombectomy removes clots to restore blood flow.
 - **Statement 2 is incorrect:** It is used for Ischemic strokes (caused by a clot). In a Hemorrhagic stroke, the vessel has burst; removing a non-existent clot is not the treatment, and thinning the blood or invasive mechanical removal could worsen the bleeding.

4. Consider the following statements regarding the complexity of cellular structures:

1. Prokaryotic cells are characterized by the presence of circular DNA that is not enclosed within a nuclear envelope.

- Eukaryotic cells possess membrane-bound organelles, such as mitochondria, which are involved in specialized metabolic functions.

Which of the statements given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Prokaryotes (Bacteria) have a nucleoid region instead of a true nucleus.
 - **Statement 2 is correct:** Eukaryotes (Plants/Animals) have highly organized compartmentalized organelles.

5. Consider the following table comparing cell types:

Feature	Prokaryotic Cell	Eukaryotic Cell
I. Nucleus	Absent	Present
II. Ribosomes	Larger	Smaller
III. Organelles	Lacks Mitochondria	Contains Mitochondria
IV. Cell Wall	Chemically simpler	Chemically complex

How many rows in the table above correctly match the features of the cell types?

- Only one
- Only two
- Only three
- All four

Correct Answer: (b)

Explanation:

- **Rows I and III are correct.**
 - **Row II is incorrect:** Prokaryotes have smaller ribosomes; Eukaryotes have larger ribosomes in the cytoplasm.
 - **Row IV is incorrect:** Prokaryotic cell walls (Peptidoglycan) are chemically more complex than the cellulose-based walls of plants.

6. Consider the following statements regarding plant tissues:

- Parenchyma cells are relatively unspecialized and possess thin cellulose cell walls.
- Collenchyma tissue provides mechanical support and flexibility, allowing plant parts to bend without snapping.
- Sclerenchyma is composed of living cells that provide buoyancy to aquatic plants.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statements 1 and 2 are correct.**
 - **Statement 3 is incorrect:** Sclerenchyma consists of dead cells with lignified walls (e.g., coconut husk). The tissue providing buoyancy in aquatic plants is a specialized parenchyma called Aerenchyma.

7. With reference to complex permanent tissues in plants, consider the following statements:

1. Both Xylem and Phloem are considered conducting tissues and together they constitute the vascular bundle.
2. Xylem is primarily responsible for the unidirectional transport of water and minerals from roots to leaves.
3. Phloem consists of dead cells that transport food products from the leaves to the rest of the plant.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct.**
 - **Statement 3 is incorrect:** Most cells in the Phloem (Sieve tubes, Companion cells) are living cells. Only Phloem fibers are dead. In Xylem, most cells (tracheids, vessels) are dead.

8. Consider the following statements regarding animal tissues:

1. Epithelial tissues serve as protective coverings and are the first to develop during embryonic growth.
2. Connective tissues, which bind and support other tissues, are derived from the mesodermal layer of the embryo.
3. Squamous epithelium is characterized by tall, pillar-like cells found in the lining of the stomach.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statements 1 and 2 are correct.**
 - **Statement 3 is incorrect:** Squamous epithelium consists of flattened, scale-like cells. Tall, pillar-like cells are called Columnar epithelium, which are indeed found in the stomach lining.

9. Match the following organs of the Digestive System with their primary physiological roles:

Organ	Primary Function
I. Stomach	A) Absorption of the majority of nutrients
II. Small Intestine	B) Secretion of HCl and Pepsin
III. Large Intestine	C) Reabsorption of water and formation of feces
IV. Liver	D) Production of Bile for fat emulsification

Select the correct match:

- (a) I-B, II-A, III-C, IV-D
- (b) I-A, II-B, III-D, IV-C
- (c) I-C, II-D, III-A, IV-B
- (d) I-B, II-C, III-A, IV-D

Correct Answer: (a)

Explanation: The Stomach initiates protein digestion (B). The Small Intestine is the main site of nutrient absorption (A). The Large Intestine recovers water (C). The Liver produces bile (D).

10. Consider the following statements:

1. The Liver is the largest gland in the human body and performs critical detoxification of harmful substances.
2. The Pancreas functions as a dual gland, performing both exocrine (digestive enzymes) and endocrine (blood sugar regulation) roles.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** The liver produces bile and filters toxins.
- **Statement 2 is correct:** It is a heterocrine gland. It secretes pancreatic juice (exocrine) and hormones like Insulin/Glucagon (endocrine).

Cells and Tissues - II

1. Consider the following statements regarding respiratory mechanisms in the animal kingdom:

1. Aerobic respiration occurs in the presence of oxygen and is significantly more energy-efficient than anaerobic respiration, which produces lactic acid or alcohol.
2. Among vertebrates, the use of lungs is universal and exclusive, with no other organs participating in gaseous exchange.

3. Lower invertebrates, such as aquatic arthropods and mollusks, primarily utilize a tracheal network for direct atmospheric respiration.

How many of the statements given above are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Correct Answer: (a)

Explanation:

• **Statement 1 is correct:** Aerobic respiration yields high ATP, while anaerobic yields much less and produces byproducts like lactic acid.

- **Statement 2 is incorrect:** While vertebrates use lungs, some amphibians also respire through their moist skin (cutaneous respiration).
- **Statement 3 is incorrect:** Aquatic arthropods and mollusks use gills. Tracheal tubes are specific to insects.

2. Consider the following statements:

1. Oxidative stress represents a physiological state where Reactive Oxygen Species (ROS) overwhelm the body's antioxidant defenses, potentially damaging DNA and proteins.
2. Antioxidants are unstable molecules produced during metabolism that trigger neurodegenerative disorders and accelerate the aging process.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Correct Answer: (a)

Explanation:

• **Statement 1 is correct:** It accurately describes the imbalance leading to cellular damage.

- **Statement 2 is incorrect:** This is the definition of Reactive Oxygen Species (ROS). Antioxidants are the defenders that neutralize ROS to prevent such damage.

3. With reference to circulatory patterns in organisms, consider the following statements:

1. In a closed circulatory system, typical of annelids and chordates, blood is pumped through a distinct and continuous network of vessels.
2. Arthropods and mollusks possess an open circulatory system where blood is confined strictly to arteries and veins to provide targeted nutrient delivery.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Correct Answer: (a)

Explanation:

• **Statement 1 is correct:** Closed systems keep blood within vessels.

- **Statement 2 is incorrect:** In open systems (arthropods/mollusks), blood is pumped into open spaces or sinuses, not a closed network of vessels.

4. Consider the following statements regarding human vascular biology:

1. Arteries invariably carry oxygen-rich blood, while veins exclusively transport deoxygenated blood throughout the human body.
2. Nitric Oxide (NO) serves as a vital regulator by relaxing smooth muscles in blood vessels, thereby facilitating vasodilation and improved flow.
3. Capillaries act as the primary site for material exchange between the blood and tissue cells due to their thin-walled structure.

How many of the statements given above are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The Pulmonary Artery carries deoxygenated blood, and the Pulmonary Vein carries oxygenated blood. They are the exceptions.
 - **Statement 2 is correct:** Nitric Oxide is a well-known vasodilator.
 - **Statement 3 is correct:** Capillaries are designed specifically for the exchange of O₂, nutrients, and waste.

5. Consider the following statements regarding nitrogenous waste excretion:

1. Uricotelism, common in birds and reptiles, is an evolutionary adaptation to minimize water loss by excreting waste as a paste or pellet.
2. In mammals, the liver plays a critical role in the excretory process by converting toxic ammonia into urea before it reaches the kidneys.
3. Ammonotelism is the primary mode of excretion in terrestrial amphibians as it helps in the conservation of internal body fluids.

How many of the statements given above are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** Uric acid requires very little water for excretion.
 - **Statement 2 is correct:** Ammonia is converted to urea in the liver (Ornithine cycle) and then filtered by the kidneys.
 - **Statement 3 is incorrect:** Ammonotelism (ammonia excretion) requires vast amounts of water and is seen in aquatic animals. Terrestrial amphibians are generally ureotelic (excrete urea).

6. Consider the following statements regarding the Master Gland and its regulation:

1. The hypothalamus produces hormones that act as direct regulators for the secretions of the anterior pituitary gland.

2. Growth Hormone (GH) is secreted by the posterior pituitary, and its over-secretion in adults leads to gigantism.
3. Luteinizing Hormone (LH) is an intercellular messenger produced in trace amounts to regulate reproductive cycles in females.

How many of the statements given above are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Correct Answer: (a)

Explanation:

• **Statement 1 is correct:** The hypothalamus controls the anterior pituitary via releasing/inhibiting hormones.

- **Statement 3 is correct:** Hormones are, by definition, produced in trace amounts.
- **Statement 2 is incorrect:** GH is secreted by the Anterior Pituitary. Over-secretion in adults causes acromegaly; gigantism occurs when over-secreted in children.

7. Match List-I (Gland) with List-II (Primary Function/Hormone):

List-I (Gland)	List-II (Function/Hormone)
A. Pineal Gland	1. T-cell production & Immune function
B. Thymus	2. Sleep-wake cycle (Melatonin)
C. Adrenal Glands	3. Glucose Homeostasis (Insulin)
D. Pancreas	4. Stress response (Epinephrine)

Select the correct answer using the code given below:

- A. A-1, B-2, C-3, D-4
- B. A-2, B-1, C-4, D-3
- C. A-2, B-1, C-3, D-4
- D. A-1, B-2, C-4, D-3

Correct Answer: b (A-2, B-1, C-4, D-3)

Explanation:

- **Pineal** = Melatonin (Sleep).
 - **Thymus** = Thymosin (Immunity/T-cells).
 - **Adrenal** = Epinephrine/Cortisol (Stress).
 - **Pancreas** = Insulin/Glucagon (Blood Sugar).

8. Consider the following statements regarding Endocrine Disrupting Chemicals (EDCs):

Prelims Marathon MCQs Compilation April 2026

1. Bisphenol A is a dietary phytoestrogen naturally found in the food chain that mimics growth hormones to accelerate puberty.
2. DDT and its metabolites are pharmaceuticals specifically designed to regulate the anterior pituitary's response to stress.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Correct Answer: (d)

Explanation:

- **Statement 1 is incorrect:** Bisphenol A is a plastic contaminant, not a dietary phytoestrogen.
- **Statement 2 is incorrect:** DDT is a pesticide, not a pharmaceutical for the pituitary.

9. Which of the following best describes the Diffuse Nervous System?

- A. A system found in vertebrates where the spinal cord coordinates reflex actions.
- B. A network of neurons spread in a net-like arrangement lacking a centralized brain, typical of lower invertebrates.
- C. The division of the nervous system responsible for transmitting impulses from the CNS to peripheral organs.
- D. A specialized group of cells in the brain that conduct electrochemical stimuli to the heart.

Correct Answer: B

Explanation:

Lower invertebrates like Hydra have a diffuse nerve net. They lack the centralization (brain/spinal cord) found in higher organisms.

10. Match the Part of the Neuron with its specific characteristic:

Part of Neuron	Characteristic
A. Dendrites	1. Transmits signals away to other tissues
B. Axon	2. Contains Nissl's granules and organelles
C. Cell Body	3. Junction for communication (Synaptic cleft)
D. Synapse	4. Projections that receive incoming signals

Select the correct code:

- A. A-4, B-1, C-2, D-3
- B. A-4, B-2, C-1, D-3
- C. A-1, B-4, C-2, D-3
- D. A-2, B-1, C-4, D-3

Correct Answer: a (A-4, B-1, C-2, D-3)

Explanation:

- **Dendrites** receive signals.
 - **Axon** carries signals away.
 - **Cell Body** (Soma) contains the nucleus and Nissl's granules.
 - **Synapse** is the communication junction.

Classification of Organisms and Tissues

1. Match List I (Brain Region) with List II (Primary Function):

List I (Region)	List II (Function)
I. Fore-brain	A) Control of eye movements and auditory processing
II. Mid-brain	B) Higher cognitive functions and sensory perception
III. Hind-brain	C) Regulation of basic survival functions (breathing/heart rate)

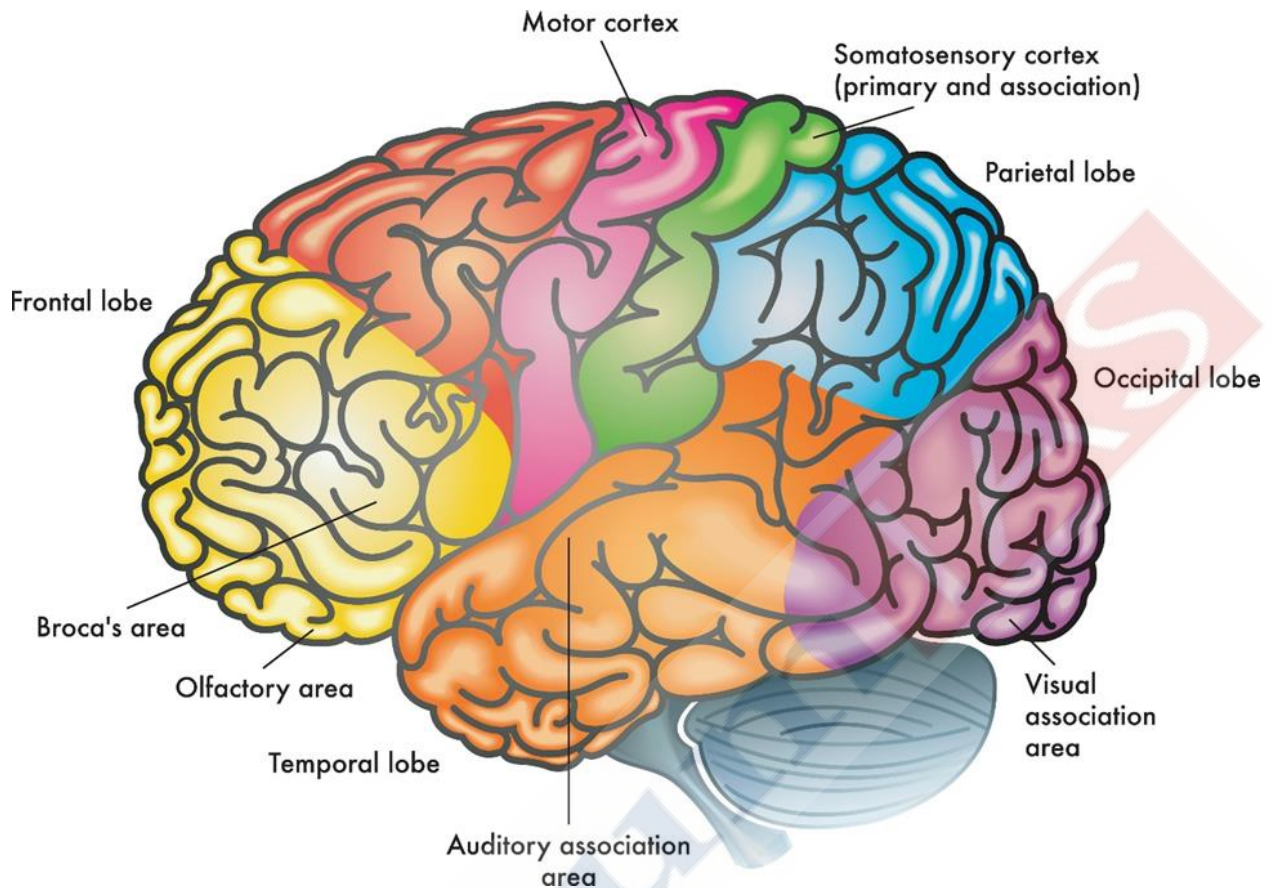
Select the correct match using the codes below:

- (a) I-B, II-A, III-C
- (b) I-A, II-B, III-C
- (c) I-C, II-B, III-A
- (d) I-C, II-A, III-B

Correct Answer: (a)

Explanation:

The brain is compartmentalized for specific tasks. The Fore-brain handles complex thinking. The Mid-brain acts as a relay for visual and auditory reflexes like eye movement. The Hind-brain (specifically the medulla) controls involuntary survival functions like heart rate.



2. Match List I (Type of Joint) with List II (Characteristic/Location):

List I (Joint Type)	List II (Location/Feature)
I. Fibrous Joint	A) Fluid-filled cavity allowing high mobility
II. Cartilaginous Joint	B) Sutures of the skull (immovable)
III. Synovial Joint	C) Intervertebral discs (limited movement)

Select the correct match using the codes below:

- (a) I-B, II-C, III-A
- (b) I-A, II-B, III-C
- (c) I-C, II-A, III-B
- (d) I-B, II-A, III-C

Correct Answer: (a)

Explanation:

Fibrous joints are fixed (like the skull bones). Cartilaginous joints allow slight movement (the spine). Synovial joints are the most mobile, containing synovial fluid to reduce friction (knees, shoulders). Infants have ~300 bones, which fuse into 206 by adulthood.

3. Match List I (Blood Component) with List II (Defining Feature):

List I (Component)	List II (Feature)
I. Plasma	A) Nucleated cells involved in immune defense
II. Erythrocytes	B) Liquid matrix containing clotting factors
III. Leucocytes	C) Non-nucleated cells for oxygen transport
IV. Platelets	D) Cell fragments essential for coagulation

Select the correct match using the codes below:

- (a) I-B, II-C, III-A, IV-D
- (b) I-C, II-B, III-D, IV-A
- (c) I-B, II-A, III-C, IV-D
- (d) I-D, II-C, III-B, IV-A

Correct Answer: (a)

Explanation:

Plasma is the matrix (55%). Erythrocytes (RBCs) lack a nucleus at maturity to carry more hemoglobin. Leucocytes (WBCs) have a nucleus and fight infection. Platelets are small fragments that plug leaks in vessels.

4. Consider the following statements regarding Lymph:

1. It is a colorless fluid containing specialized lymphocytes responsible for immune responses.
2. It acts as a carrier for nutrients and hormones, returning interstitial fluid to the major veins.
3. Fats are absorbed directly into the blood capillaries of the intestinal villi rather than the lymphatic system.

Which of the statements given above is/are incorrect?

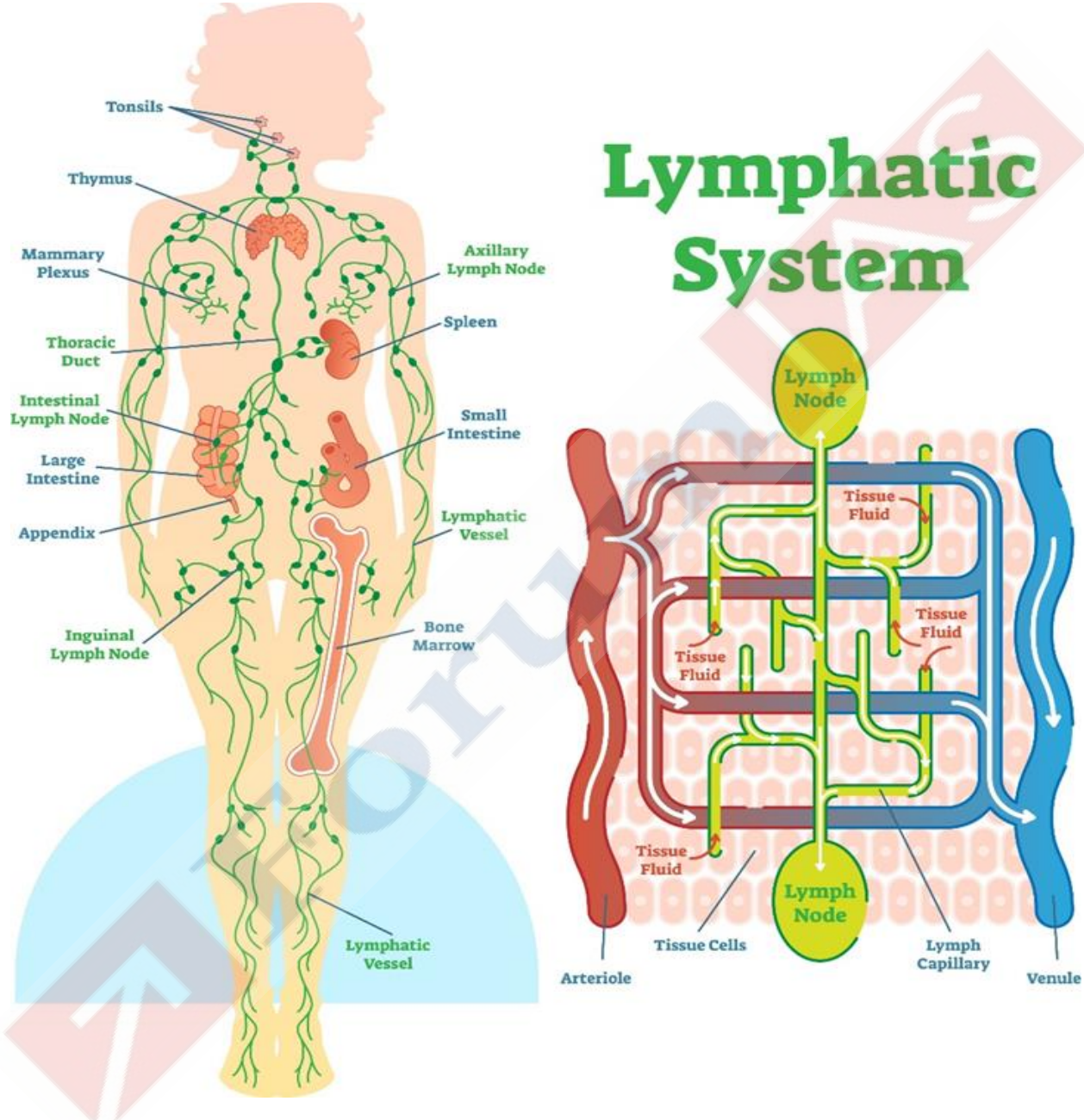
- (a) 1 only
- (b) 3 only
- (c) 1 and 2 only
- (d) 2 and 3 only

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** Lymph is a colorless fluid because it lacks red blood cells and hemoglobin. It contains specialized lymphocytes (B cells and T cells), which are central to the body's immune responses by identifying and fighting foreign pathogens like bacteria and viruses.

- **Statement 2 is correct:** Lymph serves as a vital carrier for nutrients and hormones. It plays a key role in maintaining fluid balance by collecting interstitial fluid (the fluid that leaks out of blood capillaries into tissue spaces) and returning it to the major veins near the heart, thus preventing tissue swelling.
- **Statement 3 is incorrect.** Fats are too large to enter blood capillaries; they are absorbed through lacteals, which are specialized lymph vessels in the intestinal villi.



5. Consider the following statements regarding the Kingdom Monera:

1. Mycoplasmas are the smallest known living cells and are unique because they completely lack a cell wall.
2. The vast majority of bacteria are autotrophic, synthesizing their own food from inorganic substrates.
3. Bacteriophages are viruses that specifically infect bacteria and are found in high concentrations in marine environments.

Which of the statements given above is/are incorrect?

- (a) 1 and 3 only
- (b) 2 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct.** They are unique among bacteria because they completely lack a rigid cell wall, possessing only a flexible, triple-layered plasma membrane.
- **Statement 2 is incorrect.** While some bacteria are autotrophic, the vast majority of bacteria are heterotrophs (they depend on other organisms or dead organic matter for food).
- **Statement 3 is correct.** Bacteriophages, or phages, are indeed specialized viruses that exclusively infect and kill bacteria, acting as the most abundant biological entities in marine ecosystems.

6. Consider the following statements regarding the Kingdom Protista:

1. It acts as a biological group that includes all single-celled eukaryotes.
2. Protist cells possess a well-defined nucleus and membrane-bound organelles like mitochondria.
3. Members of this kingdom are primarily terrestrial, found mostly in dry soil environments.

Which of the statements given above is/are incorrect?

- (a) 1 and 3 only
- (b) 2 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statement 1 is correct.** Kingdom Protista serves as a diverse, primarily single-celled eukaryotic group, encompassing organisms that are not classified as animals, plants, or fungi.
- **Statement 2 is correct.** As eukaryotes, protists possess a well-defined nucleus, which houses DNA, and membrane-bound organelles such as mitochondria for energy production, endoplasmic reticulum, and Golgi bodies.
- **Statement 3 is incorrect.** Members of Protista (like Amoeba and Plasmodium) are primarily aquatic, inhabiting fresh water, marine environments, or moist soil.

7. Consider the following statements regarding Kingdom Fungi:

1. Fungi are multicellular organisms with cell walls composed of chitin and lack chloroplasts.
2. Mycorrhizal fungi form symbiotic associations with plant roots, significantly improving nutrient uptake and water relations.
3. All fungi, including mushrooms, possess flagella or cilia for active locomotion throughout their life cycle.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1 and 2 only

Correct Answer: (d)

Explanation:

Statement 1&2 is correct. Fungi are eukaryotic, mostly multicellular organisms (like molds) or single-celled (yeasts) with cell walls composed of chitin and lack chloroplasts, making them heterotrophic rather than photosynthetic. Mycorrhizal fungi form vital symbiotic relationships with plant roots, expanding root surface area to increase uptake of water and nutrients like phosphorus.

Statement 3 is incorrect. Fungi generally lack mechanisms for locomotion. They grow toward food sources rather than swimming or walking toward them.

8. Which of the following statements best describes Mucormycosis, often referred to in the news as Black Fungus?

- (a) A contagious bacterial infection causing dark pigmentation of the liver.
- (b) A serious fungal infection caused by mucormycetes, resulting in tissue necrosis that appears black.
- (c) A viral respiratory disease characterized by the blackening of the lungs.
- (d) A parasitic skin condition caused by protozoa found in stagnant water.

Correct Answer: (b)

Explanation:

Mucormycosis is caused by environmental moulds. It is called black fungus because it causes necrosis (death of tissue), which turns the skin or affected area black. It is rare but serious, especially in immunocompromised individuals.

9. Consider the following statements regarding Kingdom Plantae:

- 1. While most plants are autotrophic, some species like Bladderwort and Venus Flytrap are partially heterotrophic insectivores.
- 2. Parasitic plants, such as *Cuscuta* (Amarbel), lack chlorophyll and derive nutrients directly from a host plant.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

Both statements are correct. Insectivorous plants trap insects to supplement nitrogen. *Cuscuta* is a total parasite that uses haustoria to suck nutrients from other plants.

10. Consider the following statements regarding Thallophytes:

- 1. They are simple, non-vascular plants with an undifferentiated body called a thallus, lacking true roots or leaves.
- 2. They contribute to nearly 50% of the total carbon dioxide fixation on Earth through photosynthesis.
- 3. *Sargassum* and *Spirogyra* are common examples of organisms belonging to this group.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

All statements are correct. Algae are the simplest plants. Due to their massive presence in oceans, they are the planet's primary CO₂ fixers. *Spirogyra* (freshwater) and *Sargassum* (marine) are classic examples.

Classification of Organisms-II

1. Consider the following statements regarding primitive terrestrial plants:

1. Bryophytes are termed the "amphibians of the plant kingdom" because they require water for sexual reproduction despite living on land.
2. Pteridophytes are evolutionary milestones as they were the first terrestrial plants to develop vascular tissues (xylem and phloem).
3. Both Bryophytes and Pteridophytes possess true roots, stems, and leaves for efficient nutrient transport.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Bryophytes (mosses/liverworts) need water for their flagellated sperm to reach the egg.
 - **Statement 2 is correct:** Pteridophytes (ferns) are the first vascular plants.
 - **Statement 3 is incorrect:** Bryophytes lack true roots, stems, and leaves (they have root-like rhizoids). Pteridophytes do possess true roots, stems, and leaves.

2. Consider the following statements regarding Gymnosperms:

1. They are characterized by ovules that are enclosed within an ovary wall, which protects them before and after fertilization.
2. Examples of this group include Cycas, Pinus, and the living fossil Ginkgo.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The word Gymnosperm means naked seed. Their ovules are not enclosed by an ovary wall and remain exposed.
 - **Statement 2 is correct:** Cycas and Pinus are classic gymnosperms.

3. Consider the following statements regarding Angiosperms:

1. They are the only group of plants where the seeds are enclosed within a fruit.
2. The primary male sex organ in an angiosperm flower is the pistil, while the stamen represents the female organ.

Which of the statements given above is/are correct?

- (a) 1 only

- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Enclosed seeds (within a fruit) is the defining feature of angiosperms.
- **Statement 2 is incorrect:** It is the opposite the Stamen is the male organ and the Pistil (or Carpel) is the female organ.

4. Match List I (Phylum) with List II (Key Feature/Example):

List I (Phylum)	List II (Feature/Example)
I. Arthropoda	A) Water vascular system; Starfish
II. Annelida	B) Segmented body; Earthworm
III. Echinodermata	C) Chitinous exoskeleton; Largest Phylum
IV. Porifera	D) Asymmetrical; Filter feeders (Sponges)

Select the correct match:

- (a) I-C, II-B, III-A, IV-D
- (b) I-B, II-C, III-D, IV-A
- (c) I-C, II-A, III-B, IV-D
- (d) I-D, II-B, III-A, IV-C

Correct Answer: (a)

Explanation:

Arthropoda (insects/crustaceans) is the largest phylum. Annelida is known for segmentation. Echinoderms (Starfish) use a unique water vascular system for movement. Porifera (Sponges) are the simplest multicellular animals.

5. Consider the following statements:

1. Hibernation is a state of winter dormancy characterized by a significant drop in metabolic rate and body temperature.
2. Aestivation is a physiological response to survive cold and freezing conditions, commonly observed in Polar Bears.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Hibernation helps animals survive winter.
- **Statement 2 is incorrect:** Aestivation is summer sleep used to survive hot and dry conditions (observed in snails/slugs). Bears hibernate, they do not aestivate.

6. Which of the following sequences correctly depicts the ascending order (smallest to largest) of biological classification in the taxonomic hierarchy?

- (a) Genus → Species → Order → Family
- (b) Species → Genus → Family → Order
- (c) Species → Order → Genus → Class
- (d) Family → Genus → Species → Kingdom

Correct Answer: (b)

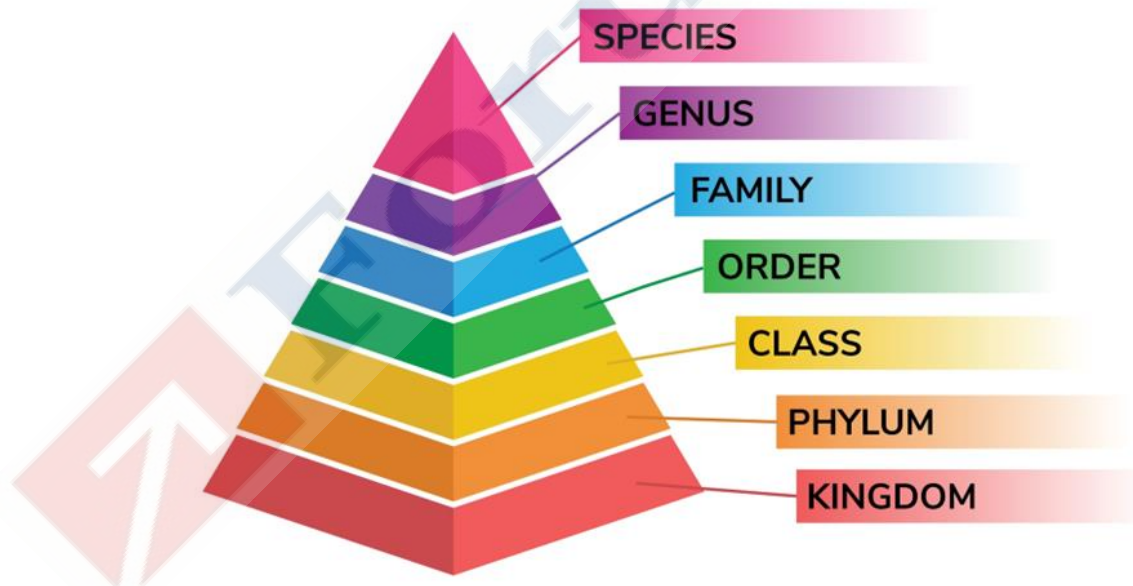
Explanation:

The correct ascending hierarchy is:

Species → Genus → Family → Order → Class → Phylum → Kingdom.

BIOLOGY ●●●

BIOLOGICAL CLASSIFICATION



7. Which of the following are examples of carnivorous (insectivorous) plants?

1. Sundews (Drosera)
2. Cobra Lily (Darlingtonia)
3. Corkscrew Plant (Genlisea)

4. Water Lily (Nymphaea)

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 2, 3 and 4 only
- (d) 1, 2 and 3 only

Correct Answer: (b)

Explanation:

Sundews, Cobra Lilies, and Corkscrew plants are all carnivorous. Water Lily is a typical aquatic autotrophic plant, not a carnivore.

8. With reference to Microalgae, consider the following statements:

1. They are photosynthetic organisms found in both freshwater and marine ecosystems.
2. They contribute to water purification by consuming excess nutrients and absorbing pollutants.
3. Their lack of complex structural components like lignin makes them attractive for biofuel production.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

All statements are correct. Microalgae are versatile, eco-friendly, and highly efficient at converting CO₂ and sunlight into biomass, which can be processed into energy.

9. Consider the following pairs regarding root modifications and their examples:

1. Prop roots : Arise from aerial branches for support (Banyan tree)
2. Stilt roots : Arise from lower stem nodes for support (Sugarcane)
3. Climbing roots : Help plants twin around support (Money plant/Betel)

How many of the pairs given above are correctly matched?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (c)

Explanation:

All are correctly described. In the original table, Climbing and Clinging were slightly confused; climbing roots (like in Betel or Black Pepper) emerge from nodes to help the plant climb.

10. In the context of plant cell structure, what is the 'tonoplast'?

- (a) The outer rigid layer protecting the cell.
- (b) The membrane that encloses the central vacuole and regulates ion transport.
- (c) The structural framework of the mitochondria.
- (d) The double-membrane surrounding the chloroplast.

Correct Answer: (b)

Explanation:

The tonoplast is the membrane of the vacuole. It is crucial for maintaining turgor pressure in the plant cell and for storing waste or nutrients.

Classification of Organisms-II

1. Consider the following statements regarding primitive terrestrial plants:

3. Bryophytes are termed the "amphibians of the plant kingdom" because they require water for sexual reproduction despite living on land.
5. Pteridophytes are evolutionary milestones as they were the first terrestrial plants to develop vascular tissues (xylem and phloem).
6. Both Bryophytes and Pteridophytes possess true roots, stems, and leaves for efficient nutrient transport.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Bryophytes (mosses/liverworts) need water for their flagellated sperm to reach the egg.
- **Statement 2 is correct:** Pteridophytes (ferns) are the first vascular plants.
- **Statement 3 is incorrect:** Bryophytes lack true roots, stems, and leaves (they have root-like rhizoids). Pteridophytes do possess true roots, stems, and leaves.

2. Consider the following statements regarding Gymnosperms:

3. They are characterized by ovules that are enclosed within an ovary wall, which protects them before and after fertilization.
4. Examples of this group include Cycas, Pinus, and the living fossil Ginkgo.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The word Gymnosperm means naked seed. Their ovules are not enclosed by an ovary wall and remain exposed.
- **Statement 2 is correct:** Cycas and Pinus are classic gymnosperms.

3. Consider the following statements regarding Angiosperms:

1. They are the only group of plants where the seeds are enclosed within a fruit.
2. The primary male sex organ in an angiosperm flower is the pistil, while the stamen represents the female organ.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Enclosed seeds (within a fruit) is the defining feature of angiosperms.
- **Statement 2 is incorrect:** It is the opposite the Stamen is the male organ and the Pistil (or Carpel) is the female organ.

4. Match List I (Phylum) with List II (Key Feature/Example):

List I (Phylum)	List II (Feature/Example)
I. Arthropoda	A) Water vascular system; Starfish
II. Annelida	B) Segmented body; Earthworm
III. Echinodermata	C) Chitinous exoskeleton; Largest Phylum
IV. Porifera	D) Asymmetrical; Filter feeders (Sponges)

Select the correct match:

- (a) I-C, II-B, III-A, IV-D
- (b) I-B, II-C, III-D, IV-A
- (c) I-C, II-A, III-B, IV-D
- (d) I-D, II-B, III-A, IV-C

Correct Answer: (a)

Explanation:

Arthropoda (insects/crustaceans) is the largest phylum. Annelida is known for segmentation. Echinoderms (Starfish) use a unique water vascular system for movement. Porifera (Sponges) are the simplest multicellular animals.

5. Consider the following statements:

1. Hibernation is a state of winter dormancy characterized by a significant drop in metabolic rate and body temperature.
2. Aestivation is a physiological response to survive cold and freezing conditions, commonly observed in Polar Bears.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only

- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Hibernation helps animals survive winter.
- **Statement 2 is incorrect:** Aestivation is summer sleep used to survive hot and dry conditions (observed in snails/slugs). Bears hibernate, they do not aestivate.

6. Which of the following sequences correctly depicts the ascending order (smallest to largest) of biological classification in the taxonomic hierarchy?

- (a) Genus → Species → Order → Family
- (b) Species → Genus → Family → Order
- (c) Species → Order → Genus → Class
- (d) Family → Genus → Species → Kingdom

Correct Answer: (b)

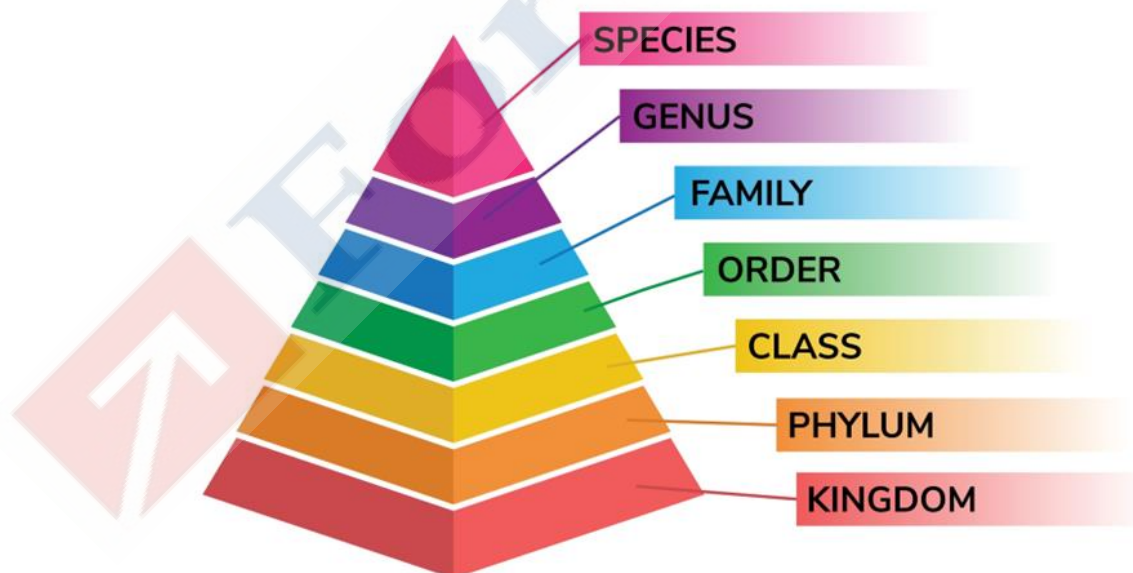
Explanation:

The correct ascending hierarchy is:

Species → Genus → Family → Order → Class → Phylum → Kingdom.

BIOLOGY ●●●

BIOLOGICAL CLASSIFICATION



7. Which of the following are examples of carnivorous (insectivorous) plants?

- 5. Sundews (Drosera)

6. Cobra Lily (Darlingtonia)
7. Corkscrew Plant (Genlisea)
8. Water Lily (Nymphaea)

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 2, 3 and 4 only
- (d) 1, 2 and 3 only

Correct Answer: (b)

Explanation:

Sundews, Cobra Lilies, and Corkscrew plants are all carnivorous. Water Lily is a typical aquatic autotrophic plant, not a carnivore.

8. With reference to Microalgae, consider the following statements:

1. They are photosynthetic organisms found in both freshwater and marine ecosystems.
2. They contribute to water purification by consuming excess nutrients and absorbing pollutants.
3. Their lack of complex structural components like lignin makes them attractive for biofuel production.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

All statements are correct. Microalgae are versatile, eco-friendly, and highly efficient at converting CO₂ and sunlight into biomass, which can be processed into energy.

9. Consider the following pairs regarding root modifications and their examples:

1. Prop roots : Arise from aerial branches for support (Banyan tree)
2. Stilt roots : Arise from lower stem nodes for support (Sugarcane)
3. Climbing roots : Help plants twin around support (Money plant/Betel)

How many of the pairs given above are correctly matched?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (c)

Explanation:

All are correctly described. In the original table, Climbing and Clinging were slightly confused; climbing roots (like in Betel or Black Pepper) emerge from nodes to help the plant climb.

10. In the context of plant cell structure, what is the 'tonoplast'?

- (a) The outer rigid layer protecting the cell.
- (b) The membrane that encloses the central vacuole and regulates ion transport.
- (c) The structural framework of the mitochondria.

(d) The double-membrane surrounding the chloroplast.

Correct Answer: (b)

Explanation:

The tonoplast is the membrane of the vacuole. It is crucial for maintaining turgor pressure in the plant cell and for storing waste or nutrients.

Biotechnology

1. Consider the following statements regarding Genes and DNA:

1. A gene is a specific segment of DNA that contains instructions for producing a functional product, usually a protein.
2. In the DNA double helix, the four nucleotide bases pair specifically: Adenine with Thymine, and Cytosine with Guanine.
3. The nitrogenous base Uracil is a primary component of the DNA molecule, providing the code for replication.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct.** A gene is a segment of DNA that contains the necessary information to produce a functional product, typically a protein. The sequence of these bases encodes genetic information. The specific pairing of the bases (A with T, and C with G) allows for the replication of DNA.
- **Statement 3 is incorrect** because Uracil is found only in RNA. DNA uses Thymine instead of Uracil.

2. Consider the following statements regarding Chromosomes:

1. Chromosomes are thread-like structures made of DNA and proteins, primarily found within the nucleus of eukaryotic cells.
2. The number of chromosomes is universal across all living species; for instance, both humans and complex primates possess exactly 46 chromosomes.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct.** Chromosomes are condensed, thread-like structures composed of DNA and proteins (primarily histones) that reside within the nucleus of eukaryotic cells. They package long DNA molecules into compact structures, making them visible during cell division.

- **Statement 2 is incorrect:** The number of chromosomes is species-specific. While humans have 46 (23 pairs), other species have different characteristic numbers (e.g., chimpanzees have 48).

3. Consider the following pairs:

Disorder	Genetic Cause & Chromosome
1. Down's Syndrome	Trisomy involving an extra copy of Chromosome 21
2. Turner's Syndrome	Monosomy (XO) occurring in females
3. Klinefelter's Syndrome	Deletion of a segment of the Y chromosome in males
4. Cri-du-chat Syndrome	Deletion of a part of the short arm of Chromosome 5

How many of the pairs given above are correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

Correct Answer: (c)

Explanation:

- **Pair 1 is correctly matched:** Down's Syndrome is the result of Trisomy 21, where an individual has three copies of chromosome 21 instead of the usual two.
- **Pair 2 is correctly matched:** Turner's Syndrome is a condition that affects only females, resulting when one of the X chromosomes (sex chromosomes) is missing or partially missing (45, X instead of 46, XX).
- **Pair 3 is incorrectly matched:** Klinefelter's Syndrome is not caused by a deletion. It is caused by an extra X chromosome in a male (47, XXY). This results in a male who may have reduced muscle mass, facial hair, and body hair.
- **Pair 4 is correctly matched:** Cri-du-chat Syndrome (French for cry of the cat) is a rare genetic disorder caused by a deletion of genetic material on the small arm (p arm) of chromosome 5. Infants with this condition often have a high-pitched cry that sounds like that of a cat.

4. Consider the following statements regarding RNA:

1. RNA is typically a single-stranded molecule that uses ribose sugar and the nitrogenous base Uracil instead of Thymine.
2. Unlike DNA, RNA is found exclusively within the cytoplasm and cannot enter the nucleus of a cell.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

Statement 1 is correct. Statement 2 is incorrect because RNA is synthesized in the nucleus (during transcription) before it moves to the cytoplasm (for translation).

5. Consider the following statements regarding the flow of genetic information:

1. Transcription is the process where a DNA segment is copied into messenger RNA (mRNA) within the nucleus.
2. Translation is the process by which ribosomes in the cytoplasm use mRNA instructions to assemble amino acids into proteins.
3. According to the Central Dogma, genetic information flows in a multi-directional path: primarily from Proteins back to DNA.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

Statements 1 and 2 are correct. Transcription and translation are the two main steps of gene expression, forming the basis of protein synthesis. Transcription copies DNA into mRNA within the nucleus, while translation uses that mRNA at cytoplasmic ribosomes to assemble amino acids into proteins. This central dogma moves genetic information from DNA to functional proteins.

Statement 3 is incorrect. The Central Dogma states that information flow is unidirectional: DNA RNA Protein. It does not flow from proteins back to DNA.

6. Consider the following statements regarding Dark DNA:

1. Dark DNA refers to genomic regions that are easily identified using standard sequencing but have no known biological function.
2. Recent research suggests these regions may influence gene regulation and species adaptation, despite being traditionally labeled as "junk DNA."

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

Statement 2 is correct. Recent research has overturned the traditional view of junk DNA non-coding, repetitive, or intergenic sequences—revealing that these regions are actually essential for gene regulation and species adaptation.

Statement 1 is incorrect: Because Dark DNA is characterized by being difficult to detect or interpret using standard methods, often due to high mutation rates.

7. Consider the following pairs based on the table provided:

Pair	Description of Viral Characteristics
1.	Adenoviruses possess a DNA genome and replicate in the host cell nucleus without integrating into the host genome.
2.	Retroviruses utilize the enzyme Reverse Transcriptase to convert their RNA genome into DNA for integration into the host genome.
3.	HIV is a primary example of an Adenovirus, typically causing acute respiratory infections.
4.	Adenovirus Vectors are commonly used in gene therapy because they do not permanently alter the host's genetic code.

How many of the pairs given above are correctly matched?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (c)

Explanation:

- **Pair 1 is correctly matched:** Adenoviruses are non-enveloped viruses with a double-stranded DNA genome. Unlike retroviruses, their genetic material remains episomal, meaning it stays in the nucleus but does not fuse with the host's DNA.
- **Pair 2 is correctly matched:** Retroviruses (like HIV) carry RNA. They use an enzyme called Reverse Transcriptase to back-copy their RNA into DNA, which is then spliced into the host cell's own DNA using the enzyme Integrase.
- **Pair 3 is incorrectly matched:** HIV (Human Immunodeficiency Virus) is a Retrovirus, not an Adenovirus. Adenoviruses are typically responsible for the common cold, conjunctivitis, or bronchitis.
- **Pair 4 is correctly matched:** Because Adenoviruses do not integrate into the host genome (as noted in Pair 1), they are preferred as vectors (delivery vehicles) for certain vaccines and gene therapies where permanent genetic modification is not desired or could be risky.

8. Consider the following statements regarding the Human Genome Project:

1. The HGP was an international effort launched in 1990 with the goal of sequencing all 3.2 billion nucleotide pairs in the human genome.
2. The project achieved its primary goal of sequencing all 24 human chromosomes by the year 1995, ahead of its initial schedule.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct.** The Human Genome Project (HGP) was a monumental 13-year international research effort formally launched in October 1990 to map and sequence the entire human genome. Led by the NIH and DOE in the U.S. along with international partners, it aimed to determine the exact order of roughly 3 billion nucleotide base pairs (A,T,C,G) and identify all human genes.
- **Statement 2 is incorrect.** The initial target for completion was 2005 (though a high-quality draft was finished in 2003). Sequencing was not finished as early as 1995.

9. Consider the following statements regarding the Genome India Project:

1. Initiated in 2020, its goal is to sequence the genomes of 10,000 individuals to represent the diverse genetic grid of India.
2. The project is being carried out exclusively by private foreign biotechnology firms to ensure rapid data processing.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

Statement 1 is correct. Statement 2 is incorrect, the project is a government-led initiative by the Department of Biotechnology, involving 20 Indian institutions led by the IISc Bengaluru.

10. Consider the following statements regarding the Earth Bio-Genome Project:

1. The project aims to sequence, characterize, and catalogue the genomes of all eukaryotic biodiversity on Earth within a decade.
2. It is a three-phase initiative that intends to sequence approximately 1.5 million known species.
3. The EBP is limited to sequencing human-pathogenic viruses and bacteria to prevent future pandemics.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

Statements 1 and 2 are correct. Statement 3 is incorrect, the EBP focuses on eukaryotic biodiversity (plants, animals, fungi, protists), not just viruses or bacteria. It is often called the Digital Library of Life.

Biotechnology-II

1. Consider the following statements:

1. The Transcriptome refers to the full library of DNA sequences, including both coding and non-coding regions, found within a single cell.
2. Aerial Metagenomics involve the collection and analysis of genetic material from airborne particles to study microbial diversity in the atmosphere.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The Transcriptome refers to the complete set of RNA molecules (mRNA, tRNA, rRNA, etc.) expressed by a cell at a specific time, not the DNA library (which is the Genome).
- **Statement 2 is correct:** It is an emerging field that samples DNA/RNA from aerosols to monitor biodiversity or pathogens in the air.

2. Consider the following statements regarding the Somatic Cell Nuclear Transfer (SCNT) technique:

1. The process requires a somatic cell and an egg cell, where the genetic material of the donor somatic cell is removed and discarded.
2. An enucleated egg cell serves as the "host" into which the nucleus of the donor somatic cell is transplanted.
3. In SCNT, the reconstructed egg requires external fertilization by a sperm cell to begin the process of embryo development.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The genetic material of the somatic cell is the one preserved and transferred; the genetic material of the egg cell is discarded.
- **Statement 2 is correct:** This is the core mechanism of Somatic Cell Nuclear Transfer (SCNT).
- **Statement 3 is incorrect:** Somatic Cell Nuclear Transfer (SCNT) bypasses sperm fertilization. The egg is activated artificially (electrically or chemically) to start dividing.

3. Consider the following statements regarding the applications of Somatic Cell Nuclear Transfer (SCNT):

1. SCNT can be used for reproductive cloning, a process famously demonstrated by the creation of Dolly the sheep.
2. Therapeutic cloning uses SCNT to produce stem cells that are genetically identical to the donor, reducing the risk of immune rejection in regenerative medicine.
3. SCNT is currently the primary and most cost-effective method used for the commercial mass production of food crops.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** Somatic Cell Nuclear Transfer (SCNT) is used for both cloning whole organisms and creating patient-specific stem cells.
- **Statement 3 is incorrect:** Somatic Cell Nuclear Transfer (SCNT) is an animal biotechnology tool. Mass production of food crops relies on seed technology, tissue culture, or other genetic modifications, not nuclear transfer into egg cells.

4. Consider the following statements regarding the INDigen Project:

1. It is an initiative launched by the CSIR to sequence the whole genomes of diverse Indian individuals.
2. The project aims to create a database to help understand how genetic variations in the Indian population influence drug responses.
3. The INDigen Project focuses exclusively on mapping the genomes of extinct ancient Indian species to study evolution.

Which of the statements given above are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** The project is about human genomics to improve precision healthcare in India.
- **Statement 3 is incorrect:** It focuses on living Indian individuals, not extinct species.

5. With reference to Genome Editing, consider the following statements:

1. It is a type of genetic engineering that allows for the precise insertion, deletion, or modification of DNA in a living organism.
2. Genome editing can only be performed on single-celled organisms like bacteria and is not applicable to complex multicellular eukaryotes.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** This is the standard definition of genome engineering.
- **Statement 2 is incorrect:** Genome editing (especially via CRISPR) is widely used in plants, animals, and human cells.

6. Consider the following statements regarding the CRISPR-Cas9 system:

1. CRISPR acts as a guide RNA molecule that identifies the target DNA sequence through complementary base-pairing.
2. The Cas9 protein acts as a molecular scissor that makes a site-specific cut in the DNA.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

CRISPR-Cas9 is a precise gene-editing tool where the guide RNA (gRNA) component scans and identifies the target DNA sequence via complementary base-pairing. The Cas9 protein serves as a molecular scissor, creating a site-specific double-strand break in the DNA.

Key Aspects of CRISPR-Cas9 Technology:

- **Mechanism:** It consists of two components: the guide RNA (gRNA), which finds the specific DNA sequence, and the Cas9 enzyme, which cuts it.
- **Targeting:** The guide RNA binds to specific DNA bases, enabling precise gene identification.
- **Cleavage:** The Cas9 nuclease cuts the target DNA, allowing for the deletion, addition, or modification of genes.
- **Origin:** The system is derived from a natural defense mechanism in bacteria and archaea, which use it to fight viral attacks.
- **Applications:** It is used in biotechnology for genome editing, including in medicine for gene therapy and in agriculture for crop improvement.

7. Consider the following statements regarding gene editing nucleases:

1. TALENs utilize DNA-binding domains derived from transcription activator-like effectors.
2. Zinc-finger nucleases (ZFNs) are fusions of a DNA-binding protein and a DNA-cleavage domain.
3. Unlike CRISPR-Cas9, both TALENs and ZFNs rely on a guide RNA molecule to find their target DNA sequence.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct.** TALENs (Transcription Activator-Like Effector Nucleases) use TALE DNA-binding domains to recognize specific sequences, while ZFNs (Zinc-Finger Nucleases) utilize zinc-finger domains. Both technologies fuse these, or similar, DNA-binding domains with the FokI endonuclease cleavage domain to introduce targeted double-strand breaks (DSBs) for gene editing.
- **Statement 3 is incorrect:** TALENs and ZFNs use protein-DNA interactions to recognize targets, not RNA-DNA base pairing like CRISPR.

8. Consider the following statements regarding Homing Endonucleases (Mega-nucleases):

1. These enzymes possess highly sequence-specific DNA binding properties.

- Similar to ZFNs and TALENs, the binding and cleavage domains in mega-nucleases are modular and can be easily swapped.

Which of the statements given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Correct Answer: (a)

Explanation:

- Statement 1 is correct.** Homing endonucleases (HEs) are specialized DNA-cutting enzymes that act as selfish genetic elements, promoting their own proliferation within a genome.
- Statement 2 is incorrect:** Mega-nucleases are not modular; their binding and cleavage functions are intertwined within the same protein structure, making them harder to re-engineer than ZFNs or TALENs.

9. Consider the following statements regarding the initiation of RNAi:

- RNA interference is a natural cellular process used to regulate gene expression and provide defense against viral infections.
- The process is typically triggered by the presence of single-stranded RNA (ssRNA) in the cytoplasm.
- An enzyme called Dicer is responsible for cutting long double-stranded RNA into shorter fragments known as siRNA.

Which of the statements given above are correct?

- 1 and 2 only
- 1 and 3 only
- 2 and 3 only
- 1, 2 and 3

Correct Answer: (b)

Explanation:

- Statements 1 and 3 are correct.** RNA interference (RNAi) is a conserved cellular mechanism for regulating gene expression and defending against viruses by degrading specific messenger RNA (mRNA) molecules. The process involves the enzyme Dicer, a ribonuclease III-type enzyme, which cleaves long double-stranded RNA (dsRNA) into short interfering RNA (siRNA) fragments, typically 21–23 base pairs long.
- Statement 2 is incorrect:** RNAi is triggered by double-stranded RNA (dsRNA). Single-stranded RNA is the normal state for mRNA and does not trigger this defense/regulation mechanism.

10. Consider the following statements regarding the RISC complex:

- siRNA fragments are loaded into a protein complex known as the RNA-induced silencing complex (RISC).
- The RISC complex retains both strands of the siRNA to ensure maximum binding efficiency with the target mRNA.
- Once the antisense strand of the siRNA binds to the target mRNA, the mRNA is cleaved and destroyed, preventing protein synthesis.

Which of the statements given above are correct?

- 1 and 2 only
- 1 and 3 only
- 2 and 3 only

(d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statements 1 and 3 are correct.** siRNA fragments are loaded into a protein complex known as the RNA-induced silencing complex (RISC), a crucial step in the RNA interference (RNAi) pathway. This process, which often involves Dicer processing of longer dsRNA, leads to the separation of strands, where one strand (the guide) directs RISC to complementary mRNA targets, causing their degradation.
- **Statement 2 is incorrect:** RISC removes one strand (the passenger strand) and keeps only one strand (the guide strand) to pair with the target mRNA.

Biotechnology Applications

1. Consider the following statements regarding Recombinant DNA (rDNA) technology:

1. Recombinant DNA is a molecule created in vitro by combining DNA segments from different biological sources.
2. It involves isolating a target gene, inserting it into a vector, transferring this new DNA into a host organism and cloning it.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** Recombinant DNA technology specifically involves combining DNA from different sources to modify genetic makeup.
- **Statement 2 is correct:** It involves isolating a target gene, inserting it into a vector (like a plasmid or virus), transferring this new DNA into a host organism (bacteria/yeast), and cloning it. The technology alters the genome of an organism by adding new genes, deleting, or editing existing genes to produce desirable traits (e.g., insulin production, drought-resistant crops).

2. Consider the following statements:

1. Restriction enzymes are used as molecular scissors to cut DNA at non-specific, random sequences to ensure genetic diversity.
2. Plasmids are large, linear DNA molecules found inside the chromosomal DNA of most bacteria.
3. Biolistics is a method where DNA-coated metal particles are shot into plant cells to achieve transformation.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** Restriction enzymes cut DNA at specific sequences, not random ones.

- **Statement 2 is incorrect:** Plasmids are small, circular, and found outside the chromosomal DNA.
- **Statement 3 is correct:** Biolistics (gene gun) is a valid method for inserting DNA into plant cells.

3. Consider the following statements regarding Mitochondrial Replacement Therapy (MRT):

1. The technique is primarily used to prevent the inheritance of serious diseases passed through maternal mitochondrial DNA.
2. In this process, the mother's nuclear DNA is transferred into a donor's healthy egg which has had its own nucleus removed.
3. The resulting embryo carries genetic material from two biological mothers and one biological father in equal proportions (33% each).

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** The goal is to replace diseased mitochondria (from the mother) with healthy ones (from a donor) while keeping the parents' nuclear DNA.
- **Statement 3 is incorrect:** The child carries the nuclear DNA of the two parents (>99%) and only the mitochondrial DNA of the donor (<1%). It is not an equal split.

4. Consider the following statements:

1. Maternal Spindle Transfer (MST) and Pronuclear Transfer (PNT) are the two most common techniques for creating three-parent babies.
2. In these techniques, healthy mitochondria are donated by the father to replace the mother's diseased organelles.
3. Mitochondrial replacement can only be performed after the egg has been successfully fertilized in vitro.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** MST and PNT are indeed the primary techniques used.
- **Statement 2 is incorrect:** Healthy mitochondria come from a female donor's egg, not the father.
- **Statement 3 is incorrect:** It can be done either before or after IVF (MST is done before fertilization, PNT is done after).

5. Consider the following statements regarding regenerative medicine:

1. Stem cell therapy involves manipulating cells in a lab to specialize into specific types like heart muscle or nerve cells before implantation.
2. During the process, chemotherapy may be used to intentionally wipe out the patient's existing bone marrow to prepare for new stem cells.

3. Adult stem cells are preferred over embryonic ones because they can specialize into any cell type in the body without limitation.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statements 1 and 2 are correct:** These are standard steps in stem cell therapy/transplants.
- **Statement 3 is incorrect:** It is Embryonic stem cells that are pluripotent (can become any cell type); adult stem cells are generally more limited in their specialization.

6. Consider the following sources of stem cells:

1. Umbilical cord blood and Wharton's jelly.
2. Genetically reprogrammed adult somatic cells (Induced Pluripotent Stem Cells).
3. Mature red blood cells circulating in the heart.

Which of the sources mentioned above can be utilized for stem cell therapy?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Sources 1 and 2 are correct:** Fetal tissues (like the cord) and reprogrammed somatic cells are major sources.
- **Source 3 is incorrect:** Mature red blood cells are specialized (differentiated) and do not have a nucleus or the ability to act as stem cells.

7. Match List I (Crop/Technology) with List II (Feature/Timeline):

List I (Crop/Technology)	List II (Feature/Timeline)
I. Bollgard I	A) Double-gene technology approved in 2006
II. Bollgard II	B) India's first commercial biotech crop (2002)
III. Golden Rice	C) Biofortified with Vitamin A
IV. Bt Cotton	D) Engineered with Bacillus thuringiensis genes

Select the correct match using the codes below:

- (a) I-B, II-A, III-C, IV-D
- (b) I-A, II-B, III-D, IV-C
- (c) I-C, II-D, III-A, IV-B
- (d) I-D, II-C, III-B, IV-A

Correct Answer: (a)

Explanation:

- **Bollgard I** (single-gene) was the first approved in 2002.
- **Bollgard II** (double-gene) followed in 2006.
- **Golden Rice** is designed to combat Vitamin A deficiency.
- **Bt Cotton** provides resistance to bollworms using soil bacteria genes.

8. Consider the following statements:

1. Bt Brinjal was developed by introducing the cry1Ac gene to provide resistance against the Fruit and Shoot Borer.
2. Roundup Ready soybeans are an example of herbicide-resistant crops that allow weed control without damaging the crop.
3. Gene silencing techniques are useful for research but cannot be used to create commercial transgenic crops.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** These are standard examples of pest and herbicide resistance in GM crops.
- **Statement 3 is incorrect:** Gene silencing is actively used as a technique to create transgenic crops.

9. Consider the following statements:

1. Micropropagation is used to ensure the rapid production of uniform and disease-free planting material.
2. Biofertilizers increase chemical input in soil by using synthetic nitrogen-fixing crystals.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** This is the primary benefit of tissue culture/micropropagation.
- **Statement 2 is incorrect:** Biofertilizers are eco-friendly and reduce chemical input by using microbial cultures (like bacteria or fungi) to fix nitrogen naturally.

10. Consider the following statements:

Prelims Marathon MCQs Compilation April 2026

1. Biofortification involves increasing the nutritional value of crops during the growing stage rather than during post-harvest processing.
2. Food fortification is the practice of adding vitamins and minerals to food during processing to address micronutrient deficiencies.
3. Zinc biofortification has been successfully applied to crops like wheat, rice, and sweet potatoes.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

- **All statements are correct:**
- **Biofortification** happens in the field (breeding/genetic modification).
- **Fortification** happens in the factory (adding nutrients to flour, oil, etc.).
- Zinc and Iron are major targets for biofortification projects globally.