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Prelims Marathon

1st to 7th March, 2021

HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT

Services Sector

Q.1) Consider the following statements regarding the “gig economy”:

1. It undermines the traditional economy of full-time workers who rarely change positions and instead focus on a lifetime career.
2. India is the 5th largest country for flexi-staffing.

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

ANS: C

Explanation: Gig economy can be defined as a work engagement where on one side, there is a service seeker i.e. a consumer with a demand for a specific task, and on the other side, and there is a service provider i.e. a gig worker who can perform that specific task.

- A gig economy undermines the traditional economy of full-time workers who rarely change positions and instead focus on a lifetime career.
- In this economy, tech-enabled platforms connect the consumer to the gig worker to hire services on a short-term basis.
- Gig workers include self-employed, freelancers, independent contributors and part-time workers.
- The digital gig economy generated a gross volume of approximately \$204 bn from worldwide customers in 2018.
- Transportation-based services contributed to over 50% of this value. The size of the gig economy is projected to grow by a 17% CAGR and generate a gross volume of ~\$455 bn by 2023.
- India has emerged as the 5th largest country for flexi-staffing after US, China, Brazil and Japan.
- Haryana, Madhya Pradesh, Andhra Pradesh, Gujarat and Telangana have most opportunities in terms of growth for the flexi-workers.

Source: The Hindu

Q.2) Which of the following are the objectives of the “National Digital Communications Policy”?

1. Broadband for all by 2022.
2. Creating 10 Million additional jobs in the Digital Communications sector.
3. Enhancing the contribution of the Digital Communications sector to 8% of India’s GDP from 6% in 2017.
4. Ensuring Digital Sovereignty.

Select the correct answer using the code given below:

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

ANS: C

Explanation: The National Digital Communications Policy, 2018 seeks to unlock the transformative power of digital communications networks - to achieve the goal of digital empowerment and improved well being of the people of India; and towards this end, attempts to outline a set of goals, initiatives, strategies and intended policy outcomes.

The National Communications Policy aims to accomplish the following Strategic Objectives by 2022:

- Provisioning of Broadband for All
- Creating 4 Million additional jobs in the Digital Communications sector
- Enhancing the contribution of the Digital Communications sector to 8% of India's GDP from ~ 6% in 2017
- Propelling India to the Top 50 Nations in the ICT Development Index of ITU from 134 in 2017
- Enhancing India's contribution to Global Value Chains
- Ensuring Digital Sovereignty

Source: Sriram's IAS

Q.3) Which of the following measures will spur the economic growth?

1. Transparent and hassle free land acquiring.
2. Availability of Skilled labour.
3. Lower interest rates in the economy.
4. Decrease in effective demand.

Select the correct answer using the code given below:

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

ANS: A

Explanation: The traditional argument is that the lower the interest rate, the better for businesses as it brings down the cost of capital, making investments more attractive.

- Any government would love this as the country would then draw higher investments leading to higher growth and more job creation.
- Governments abhor higher interest rates as, theoretically, these push up project costs and keep investors away.
- Capital is one of the three main factors of production, which are critical to the growth of a commercial entity, the other two being land and labour.
- But capital is only a necessary, not sufficient, condition. Land, unless allocated by the local government, is too costly for investors seeking to set up shop.
- On labour, even if adequate hands are available for a job, the skill quotient is still low. Training graduates to be job-ready is a form of tax that companies pay.
- Also to be taken into account is the market environment and demand. If end users are seeing lesser money in hand than earlier, demand will certainly be impacted.
- Therefore, in an environment where the other factors of production are not favourable for an investor, low interest rates by themselves may not prove attractive enough.
- Any revival of economic activity will be contingent on joint efforts by the government on the fiscal front to stimulate demand, and the RBI, to keep interest rates low.

Source: Sriram's IAS

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Q.4) With reference to the new hydro policy 2019, which of the following statements is/are NOT correct?

1. It includes large hydro projects within the ambit of renewable energy.
2. It created additional resources for the development of large hydro projects.

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

ANS: B

Explanation: the Union Cabinet approved a new hydroelectricity policy that, among other things, included large hydro projects within the ambit of renewable energy.

- Prior to the policy, only small hydro projects of a capacity of less than 25 MW were treated as renewable energy. Large hydro projects were treated as a separate source of energy.
- India's renewable energy sector had an installed capacity of 75,055.92 MW as of February 2019, according to data with the Central Electricity Authority.
- This made up about 21.4% of the overall energy mix, with the rest coming from thermal, nuclear and large hydro sources.
- With the inclusion of large hydro in renewable energy, the energy mix changes drastically.
- Renewable energy capacity would now be 1,20,455.14 MW or 34.4% of the overall energy mix.

Q.5) The “GATI portal” is recently in news is related to which of the following?

- a) Ship Tracking
- b) Flight tracking
- c) National highways
- d) Inland water ways

ANS: C

Explanation: Terming delays in highway projects as “unacceptable”, Road Transport and Highways Minister, asked officials and developers to strictly adhere to project schedules.

- Minister also launched online web portal ‘GATI’ on the pattern of ‘PRAGATI’, the portal used by the Prime Ministers’ Office for monitoring projects.
- The portal ‘GATI’ can be accessed from NHAI’s website, and contractors and concessionaires can raise any project-related issues on the platform, according to a statement by the Ministry of Road Transport and Highways.
- The issues raised on ‘GATI’ will be daily monitored by a team of NHAI officers and will be constantly reviewed by the senior officers of the National Highways Authority of India (NHAI) and the Ministry of Road Transport and Highways.

Source: The Hindu

Q.6) The Silver line project is sometimes seen in news is related to which of the following state?

- a) Goa
- b) Karnataka
- c) Andhra Pradesh
- d) Kerala

ANS: D

Explanation: The Kerala Rail Development Corporation (KRDCL) is confident that the ₹66,405-crore Thiruvananthapuram-Kasaragod semi-high-speed rail corridor project (named Silver Line) for which year 2024 has been set as the deadline, will be economically feasible and attain operational break-even within 10 years of being commissioned.

- Of the total cost of the 532-km project, around 50% will be loan at less than 1% interest from multilateral lending agencies such as KfW, AIIB (Asian Infrastructure Investment Bank), JICA (Japan International Cooperation Agency), or ADB (Asian Development Bank).
- Repayment is assured since there will be a rate of return of 8.1% on the investment. The balance amount will be raised from equity and (subordinate) debt from the State and Central governments.

Source: The Hindu

Q.7) The “Draft Scheme of Reconstruction” is recently in news is related to which of the following?

- a) Banking
- b) Railways
- c) Roadways
- d) Port rejuvenation

ANS: A

Explanation: RBI has placed the financially troubled Yes Bank under a moratorium (temporary suspension).

- After placing this bank under a moratorium, the RBI announced a draft Scheme of Reconstruction.
- This scheme entails the State Bank of India (SBI) investing capital to acquire a 49% stake in the restructured private lender.

Source: The Hindu

Q.8) Which of the following Insurance companies are works under General Insurance Corporation of India (GIC)?

1. National Insurance Company Ltd.
2. New India assurance Company Ltd.
3. Oriental Fire and Insurance Company Ltd.

Select the correct answer using the codes given below:

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

ANS: D

Explanation: In 1971, the government nationalised the private sector companies (107 Indian and foreign companies) playing in the general insurance segment and a government company, the General Insurance Corporation of India (GIC) was formed in 1972. The GIC started operation on January 1, 1973 with its four holding companies:

- National Insurance Company Ltd.
- New India Assurance Company Ltd.
- Oriental Fire and Insurance Company Ltd.
- United India Insurance Company Ltd.

Source: TMH Ramesh Singh

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Q.9) Which of the following statements is/are correct about Agriculture Insurance Company of India Limited (AICIL)?

1. It was set up in 1962 to secure farmers who are promoting green revolution.
2. It is fully owned by General Insurance Corporation of India (GIC).

Select the correct answer using the codes given below:

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

ANS: D

Explanation: The public sector insurance company, Agriculture Insurance Company of India Limited (AICIL) was set up by the Government of India in December 2002 (commenced its business in April 2003).

- This is a dedicated agri-insurance company and aims “to serve the needs of farmers better and to move towards a sustainable actuarial regime”.
- This company was responsible to look after the National Agriculture Insurance Scheme (NAIS) which was launched in 1999.
- Since January 2016, the company is looking after the newly launched PMFBY (Prime Minister Fasal Bima Yojana) which subsumed the existing agri-insurance schemes— the NAIS and the Modified NAIS (of 2010).
- Till the AICIL was not set up, the agri-insurance responsibility of the government was being looked after by the General Insurance Corporation (GIC).
- AICIL is jointly promoted by public sector insurance companies and development financial institutions—majority shares owned by the GIC (35 per cent) and NABARD (30 per cent) while the four public sectors general insurance companies own 8.75 per cent each in it.

Source: TMH Ramesh Singh

Q.10) With reference to the Insurance Regulatory and Development Authority (IRDA), which of the following statements is/are correct?

1. It is a statutory body.
2. The chairman and its members are appointed by government.

Select the correct answer using the codes given below:

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

ANS: C

Explanation: The Insurance Regulatory and Development Authority (IRDA) was set up in 2000 (the Act was passed in 1999) with one chairman and five members (two as full time and three as part-time members) appointed and nominated by the government.

The authority is responsible for the regulation, development and supervision of the Indian insurance industry.

Source: TMH Ramesh Singh

Infrastructure and Investment

Q.1) Consider the following statements regarding Accelerated Irrigation Benefit Programme (AIBP):

1. It was launched in 1996-97 to support major and medium irrigation projects
2. After launch of PMKSY in 2015-16, AIBP became a part of PMKSY

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

ANS: C

Explanation: Central Government launched the Accelerated Irrigation Benefits Programme (AIBP) in the year 1996-97 to provide Central Assistance to major/medium irrigation projects in the country, with the objective to accelerate implementation of such projects which were beyond resource capability of the States or were in advanced stage of completion.

Priority was given to those projects which were started in Pre-Fifth and Fifth Plan period and also to those which were benefiting Tribal and Drought Prone Areas.

After launch of PMKSY in 2015-16, AIBP became a part of PMKSY.

Since its inception, 297 Irrigation / Multi-Purpose Projects have been included for funding under AIBP. Out of this 143 projects have been completed and 5 projects were foreclosed.

Source: TMH Ramesh Singh

Q.2) Consider the following statements regarding Global Coalition for Disaster Resilient Infrastructure (CDRI):

1. It envisions enabling measurable reduction in infrastructure losses from disasters and extreme climate events.
2. It is launched by Government 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

ANS: C

Explanation: The Prime Minister of India launched the Coalition for Disaster-Resilient Infrastructure (CDRI) at the UN Secretary-General's Climate Action Summit in New York, US.

- The fledgling partnership has a secretariat in Delhi, supported by the UN Office for Disaster Risk Reduction (UNDRR), to enable knowledge exchange, technical support and capacity building.
- CDRI's mission is to rapidly expand the development of resilient infrastructure and retrofit existing infrastructure for resilience, and to enable a measurable reduction in infrastructure losses.
- Its mission statement notes that, in recent weather and climate-related disasters, up to 66% of public sector losses were related to infrastructure damage.

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- The partnership will be working in the areas of governance and policy, emerging technology, risk identification and estimation, recovery and reconstruction, resilience standards and certification, finance, and capacity development.

Source: The Hindu

Q.3) Consider the following statements regarding 'Rural Infrastructure Promotion Fund' (RIPF):

1. It has been created by Ministry of Rural Development.
2. It has been set up with a corpus of Rs. 25crore.

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

ANS: B

Explanation: NABARD has created a separate fund titled 'Rural Infrastructure Promotion Fund' (RIPF) to support programs and activities that promote rural infrastructure, with the ultimate objective of facilitating agriculture and rural development.

- RIPF has been set up with a corpus of Rs. 25 crore.
- The amount is contributed out of margin received by NABARD from a special window created under RIDF for funding the rural roads component of Bharat Nirman through National Rural Roads Development Agency (NRRDA).

Source: NABARD

Q.4) Consider the following statements regarding Foreign Portfolio Investment (FPI):

1. FPIs are short term investments and volatile in nature.
2. Portfolio investment does not offer control over the business entity in which the investment is made.

Which of the statements above given is/are correct?

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

ANS: C

Explanation: Foreign portfolio investment (FPI) refers to investing in the financial assets of a foreign country, such as stocks or bonds available on an exchange.

- This type of investment is at times viewed less favorably than direct investment because portfolio investments can be sold off quickly and are at times seen as short-term attempts to make money, rather than a long-term investment in the economy.
- Portfolio investment typically has a shorter time frame for investment return than direct investment.
- As with any equity investment, foreign portfolio investors usually expect to quickly realize a profit on their investments.
- Unlike direct investment, portfolio investment does not offer control over the business entity in which the investment is made.

Source: TMH Ramesh Singh

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Q.5) The term 'Commanding heights of Indian economy' is related to which of the following?

- a) Public Sector Undertakings
- b) Agriculture
- c) Public Sector Banks
- d) Foreign capital

ANS: A

Explanation: India's first Prime Minister Jawaharlal Nehru, inspired by the then Soviet Union-pioneered model of state sponsored growth, who mooted the idea of placing the government—and within it the state-owned and state-run PSUs—as the commanding heights of the Indian economy.

It was documented in the Industrial Policy Resolution of 1956 and found articulation in the benchmark Second Five Year Plan. Till the beginning of the 1980s, the PSUs continued to be the commanding heights.

Source: TMH Ramesh Singh

Q.6) With reference to the "Indian Depository Receipts (IDR)", which of the following statements is/are NOT correct?

1. It is a mechanism that allows investors in India to invest in listed foreign companies.
2. IDRs are denominated in Indian Rupees and issued by a Domestic Depository in India.

Select the correct answer using the codes given below:

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

ANS: D

Explanation: An IDR is a mechanism that allows investors in India to invest in listed foreign companies, including multinational companies, in Indian rupees. IDRs give the holder the opportunity to hold an interest in equity shares in an overseas company.

IDRs are denominated in Indian Rupees and issued by a Domestic Depository in India. They can be listed on any Indian stock exchange. Anybody who can invest in an IPO (Initial Public Offer) is/are eligible to invest in IDRs.

Source: TMH Ramesh Singh

Q.7) "Programme for Country Partnership (PCP)" is related to which of the following?

- a) UNCTAD
- b) UNIDO
- c) World Bank
- d) WEF

ANS: B

Explanation: The PCP is UNIDO's innovative model for accelerating inclusive and sustainable industrial development in Member States.

- Aligned with the national development agenda and focused on sectors with high growth potential, the programme supports a country in achieving its industrial development goals.
- The PCP rests on a multi-stakeholder partnership led by the host government. It builds synergies with ongoing government and partner interventions relevant to industrial development.

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- The PCP is also designed to leverage additional investment in selected priority sectors. As such, it is a model that facilitates the mobilization of partners and resources to achieve larger development impact.
- For UNIDO, the PCP serves to operationalize the Organization's mandate and SDG 9. At the same time, it is a model that can be used to implement other SDGs too.

Source: TMH Ramesh Singh

Q.8) Which of the following is/are eligibility criteria to be considered for grant of "Maharatna status" to Central Public Sector Enterprise (CPSE)?

1. Listed on Indian stock exchange.
2. Average annual turnover of more than Rs. 50,000crore, during the last 3 years.
3. Average annual net worth of more than Rs. 25,000crore, during the last 3 years.

Select the correct answer using the codes given below:

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

ANS: A

Explanation: The CPSEs fulfilling the following criteria are eligible to be considered for grant of Maharatna status.

- Having Navratna status.
- Listed on Indian stock exchange with minimum prescribed public shareholding under SEBI regulations.
- Average annual turnover of more than Rs. 25,000crore, during the last 3 years.
- Average annual net worth of more than Rs. 15,000crore, during the last 3 years.
- Average annual net profit after tax of more than Rs. 5,000crore, during the last 3 years.
- Should have significant global presence/international operations.

Source: TMH Ramesh Singh

Q.9) With reference to the "Hybrid Annuity Model (HAM)", which of the following statements is/are correct?

1. It is a mix of Build-Operate-Transfer (BOT) and Engineering, Procurement and Construction (EPC) models.
2. Under HAM 40% of the project cost is born by the government.

Select the correct answer using the codes given below:

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

ANS: C

Explanation: In India, the new HAM is a mix of BOT Annuity and EPC models.

As per the design, the government will contribute to 40% of the project cost in the first five years through annual payments (annuity). The remaining payment will be made on the basis of the assets created and the performance of the developer.

Source: TMH Ramesh Singh

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Q.10) Which of the following statements is/are correct about “India Infrastructure Finance Company Ltd (IIFCL)”?

1. It is jointly owned by Public sector and Private sector.
2. It provides long-term financial assistance to viable infrastructure projects.

Select the correct answer using the codes given below:

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

ANS: B

Explanation: IIFCL is a wholly-owned Government of India Company set up in 2006 to provide long-term financial assistance to viable infrastructure projects through the Scheme for Financing Viable Infrastructure Projects through a Special Purpose Vehicle called India Infrastructure Finance Company Ltd (IIFCL), broadly referred to as SIFTI.

- The sectors eligible for financial assistance from IIFCL are as per the Harmonized list of Infrastructure Sub-Sectors as approved by the Government and as amended from time to time.
- These broadly include transportation, energy, water, and sanitation, and communication, social and commercial infrastructure.

Source: TMH Ramesh Singh

Intellectual Property Rights

Q.1) Arrange the following conventions in chronological order of its establishment:

1. Paris Convention for the Protection of Industrial Property
2. World Intellectual Property Organization
3. Berne Convention for the Protection of Literary and Artistic Works

Select the correct answer using the codes given below:

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

ANS: B

Explanation: The importance of intellectual property was first recognized in the Paris Convention for the Protection of Industrial Property (1883) and the Berne Convention for the Protection of Literary and Artistic Works (1886).

Both treaties are administered by the World Intellectual Property Organization (WIPO) (1967).

Source: WIPO

Q.2) The validity time period of a patent in India is how many years?

- a) 5 years
- b) 10 years
- c) 20 years
- d) 30 years

ANS: C

Explanation: The term of every patent in India is twenty years from the date of filing the patent application, irrespective of whether it is filled with provisional or complete specification. However, in case of applications filed under the Patent Cooperative Treaty (PCT), the term of twenty years begins from the priority date.

Source: Sriram's IAS

Q.3) Which of the following is/are criteria for patentability?

1. It should be novel.
2. It should be capable of Industrial application.
3. It must be non-obvious.

Select the correct answer using the codes given below:

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

ANS: D

Explanation: An invention is patentable subject matter if it meets the following criteria –

- It should be novel.
- It should have inventive step or it must be non-obvious
- It should be capable of Industrial application.
- It should not attract the provisions of section 3 and 4 of the Patents Act 1970.

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Source:

https://ipindia.gov.in/writereaddata/Portal/Images/pdf/Final_FREQUENTLY_ASKED_QUESTIONS_-PATENT.pdf

Q.4) Which of the following are can trademark in India?

1. Letter
2. Word
3. Number
4. Logo

Select the correct answer using the codes given below:

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

ANS: D

Explanation: The process of brand trademark registration in India is now possible and convenient such that you can trademark any one of the below things or even a combination of the following:

- Letter
- Word
- Number
- Phrase
- Graphics
- Logo
- Sound Mark
- Smell or a mix of colors

Source: <https://cleartax.in/s/trademark-registration-procedure->

Q.5) “Madrid Agreement of 1881” is related to which of the following?

- a) Patents
- b) Industrial Designs
- c) Trade Marks
- d) All of the above

ANS: C

Explanation: Madrid Agreement, 1881 – Governs the international recognition of trademarks.

Source: Sriram’s IAS

Q.6) “Budapest Treaty of 1980” is related to which of the following?

- a) Plant varieties
- b) Micro – organisms
- c) Literary works
- d) Music albums

ANS: B

Explanation: Budapest Treaty of 1980 – It made possible patenting for micro-organisms. Claimant is required to deposit his invention on micro-organisms with an Authority – ‘International depository of Micro-Organisms’ under WIPO.

Source: Sriram’s IAS

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Q.7) Which of the following way/ways to protect geographical indication?

1. Sui generis systems.
2. Using collective or certification marks.
3. Methods focusing on business practices, including administrative product approval schemes.

Select the correct answer using the codes given below:

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

ANS: D

Explanation: There are three main ways to protect a geographical indication:

- so-called sui generis systems (i.e. special regimes of protection);
- using collective or certification marks; and
- methods focusing on business practices, including administrative product approval schemes.

Source: Sriram's IAS

Q.8) With reference to the Traditional Knowledge Digital Library, which of the following statements is/are correct?

1. It is collaboration between private industry and CSIR.
2. It manages a database of knowledge that exists in various local languages.

Select the correct answer using the codes given below:

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

ANS: B

Explanation: Traditional Knowledge Digital Library is a collaboration – between the Council of Scientific and Industrial Research (CSIR) and the Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (Dept. of AYUSH), Ministry of Health & Family Welfare, Government of India.

- It manages a database of knowledge that exists in various local languages such as Sanskrit, Urdu, Arabic, Persian and Tamil.
- TKDL has also converted the database into five international languages in patent application formats.
- So far, over 2lakh medicinal formulations have been transcribed and the database is present in 30 million A4-size pages.

Source: TKDL

Q.9) Consider the following statements regarding the Directorate General of Foreign Trade (DGFT) organization:

1. Its mandate is to formulating and implementing the Foreign Trade Policy with the main objective of promoting India's exports.
2. It is an attached office of the Ministry of Commerce and Industry.

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

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

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d) Neither 1 nor 2

ANS: D

Explanation: Directorate General of Foreign Trade (DGFT) organization is an attached office of the Ministry of Commerce and Industry and is headed by Director General of Foreign Trade.

- Right from its inception till 1991, when liberalization in the economic policies of the Government took place, this organization has been essentially involved in the regulation and promotion of foreign trade through regulation.
- Keeping in line with liberalization and globalization and the overall objective of increasing of exports, DGFT has since been assigned the role of “facilitator”.
- The shift was from prohibition and control of imports/exports to promotion and facilitation of exports/imports, keeping in view the interests of the country.
- This Directorate, with headquarters at New Delhi, is responsible for formulating and implementing the Foreign Trade Policy with the main objective of promoting India’s exports.
- The DGFT also issues scrips/authorization to exporters and monitors their corresponding obligations through a network of 38 regional offices and an extension counter at Indore.

Source: TMH Ramesh Singh

Q.10) Which of the following is/are correctly matched?

Committee/Panel	:	Significance
1. Ranga Rajan Committee	:	Balance of Payments
2. Vijay Kelkar Committee	:	Goods & Service Tax
3. Tarapore Committee	:	Currency Convertibility

Select the correct answer using the codes given below:

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

ANS: A

Explanation: Besides, economic reforms in various sectors, various Committees were set up from time to time (by the Government of India and by RBI) to discuss policy issues related to international trade and balance of payments.

Some of the important Committees were –

- Committee on Export – Import Policies & Procedures (Alexander Committee, 1978),
- Committee on Trade policy (Abid Hussain Committee, 1984),
- High – level Committee on Balance of Payments (Rangarajan Committee 1993), and
- Committee on Capital Account Convertibility (Tarapore Committee I 1997 & Tarapore Committee II 2006).

In 2003, the Vajpayee government forms a task force under Vijay Kelkar to recommend tax reforms. In 2004, Vijay Kelkar, then advisor to the Finance Ministry, recommends GST to replace the existing tax regime.

Source: TMH Ramesh Singh

Economic Survey 2020 – 2021

Q.1) Which of the following structural measures is/are taken as a part of Atmanirbhar Bharat Package?

1. Removal of artificial separation between manufacturing and service MSMEs.
2. Passing of Essential Commodities (Amendment) Act, 2020.
3. Enactment of four labour codes.

Select the correct answer using the codes given below:

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

ANS: D

Explanation: The Indian policymakers also recognized that the supply shock induced by the lockdown would disrupt the productive capacity of the economy. This capacity would need to be strengthened to meet the pent-up demand once it resumes – any mismatch would lead to macro-economic instabilities.

Table 4: Major Structural Reforms Undertaken as a Part of Atmanirbhar Bharat Package

Sector	Structural Reform Undertaken
Deregulation and Liberalization of Sectors	
Agriculture	<ul style="list-style-type: none">• Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020• Farmers (Empowerment and Protection) Agreement of Price Assurance and Farm Services Act, 2020• Essential Commodities (Amendment) Act, 2020

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MSMEs	<ul style="list-style-type: none">• New MSME definition covering almost 99 per cent of all firms enabling MSMEs to grow in size and create jobs• Removal of artificial separation between manufacturing and service MSMEs
Labour	<ul style="list-style-type: none">• Enactment of four labour codes namely, Wage Code, Industrial Relations Code, 2020, Code on Occupational Safety, Health & Working Conditions Code, 2020 & Social Security Code, 2020• 'One labour return, one licence and one registration'
Business Process Outsourcing (BPO)	<ul style="list-style-type: none">• Simplification of the Other Service Provider (OSP) guidelines of the Department of Telecom. Several requirements, which prevented companies from adopting 'Work from Home' and 'Work from Anywhere' policies have been removed
Power	<ul style="list-style-type: none">• Tariff Policy Reform: DISCOM inefficiencies not to burden consumers, Progressive reduction in cross subsidies, Time bound grant of open access, etc.• Privatization of Distribution in UTs
PSUs	<ul style="list-style-type: none">• PSUs in only strategic sectors• Privatization of PSUs in non-strategic sectors

Source: Economic Survey 2020 – 2021

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Q.2) The Modigliani-Miller theorem is mentioned in economic survey 2020 – 2021 is related to which of the following?

- a) Capital Structure
- b) Insurance sector
- c) Fiscal policy
- d) All of the above

ANS: A

Explanation: The Modigliani-Miller theorem states that a company's capital structure is not a factor in its value.

- Market value is determined by the present value of future earnings, the theorem states.
- The theorem has been highly influential since it was introduced in the 1950s.

Source: Economic Survey 2020 – 2021

Q.3) Ricardian Equivalence Proposition (REP) is related to which of the following?

- a) Government spending
- b) Minting new currency
- c) Monetary policy framework
- d) International Trade

ANS: A

Explanation: Ricardian equivalence is an economic theory that says that financing government spending out of current taxes or future taxes (and current deficits) will have equivalent effects on the overall economy.

This means that attempts to stimulate an economy by increasing debt-financed government spending will not be effective because investors and consumers understand that the debt will eventually have to be paid for in the form of future taxes.

Source: Economic Survey 2020 – 2021

Q.4) Which of the following scheme/schemes is/are Central Sector Scheme for Agriculture Sector?

1. Formation and promotion of Farmer Producer Organizations (FPOs).
2. Pradhan Mantri Fasal Bima Yojana.
3. Pradhan Mantri Kisan Samman Nidhi (Pm-Kisan).

Select the correct answer using the code given below:

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

ANS: C

Explanation: Pradhan Mantri Kisan Samman Nidhi (Pm-Kisan) is a Central Sector Scheme. It provides income support to all small and marginal landholding farmer families having cultivable land.

- PM Fasal Bima Yojana is a centrally sponsored scheme and it replaced all other existing insurance schemes except the Restructured Weather-Based Crop Insurance Scheme.
- Formation and Promotion of Farmer Producer Organizations (FPOs) is a Central Sector Scheme under Department of Agriculture, Cooperation & Farmers Welfare (DAC&FW).

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Source: Economic Survey 2020 – 2021

Q.5) Consider the following statements regarding the Pradhan Mantri Matsya Sampada Yojana (PMMSY):

1. It will be implemented over a period of 5 years from FY 2020-21 to FY 2024-25 in all coastal States/Union Territories.
2. More than 50% of the total estimated investment of the PMMSY is earmarked for creation and up-gradation of fisheries infrastructure facilities.
3. The scheme plans to reduce post-harvest losses from the present high of 25% to about 10% by modernizing and strengthening value chain.

Which of the statements given above is/are correct?

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

ANS: D

Explanation: The Pradhan Mantri Matsya Sampada Yojana (PMMSY) aims to enhance fish production to 220 lakh metric tons by 2024-25 from 137.58 lakh metric tons in 2018-19 at an average annual growth rate of about 9%.

- The Union Minister for Fisheries, Animal Husbandry and Dairying, Shri Giriraj Singh, said the ambitious scheme will result in doubling export earnings to Rs.1,00,000 crore and generate about 55 lakhs direct and indirect employment opportunities in fisheries sector over a period of next five years.
- Dedicating the PMMSY to fishers, fish farmers, fish workers, fish vendors and other stakeholders associated with the fisheries sector, Shri Giriraj Singh said that insurance coverage for fishing vessels is being introduced for the first time.
- The PMMSY will be implemented over a period of 5 years from FY 2020-21 to FY 2024-25 in all States/Union Territories.
- The Fisheries Minister said that about 42% of the total estimated investment of the PMMSY is earmarked for creation and upgradation of fisheries infrastructure facilities.
- Focus areas include Fishing Harbours and Landing Centers, Post-harvest and Cold Chain Infrastructure, Fish Markets and Marketing Infrastructure, Integrated Modern Coastal Fishing Villages and Development of Deep-sea Fishing.
- Besides creating critical fisheries infrastructure by attracting private investments in fisheries sector, the scheme plans to reduce post-harvest losses from the present high of 25% to about 10% by modernizing and strengthening value chain.
- Under the Swath Sagar plan, activities envisaged with a view to modernize the fisheries sector include promotion of Bio-toilets, Insurance coverage for fishing vessels, Fisheries Management Plans, E-Trading/Marketing, Fishers and resources survey and creation of National IT-based databases.

Source: The Hindu

Q.6) The term “Crowding out Effect”, often seen news, is related to which of the following?

- a) Rise in individual borrowings
- b) Rise in foreign investment
- c) Rise in borrowing of government
- d) Rise in high powered money

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

ANS: C

Explanation: In some situations, such as high budget deficit etc, there is rise in government borrowing from the market.

- Due to the excessive borrowing by the government from the market, there is little credit left for private sector to borrow.
- As a result, interest rate rises, making borrowings by private sector costly and leading to decline in private investment. This is known as crowding out effect.
- The private borrowing and subsequent private investment is discouraged.

Source: Economic Survey 2020 – 2021

Q.7) With reference to the India's public debt – to – GDP, which of the following statements is/are correct?

1. India's overall debt levels as a per cent of GDP are the lowest amongst the group of G-20 countries.
 2. Government debt – to – GDP is more than Private debt – to – GDP.
- Select the correct answer using the codes given below:

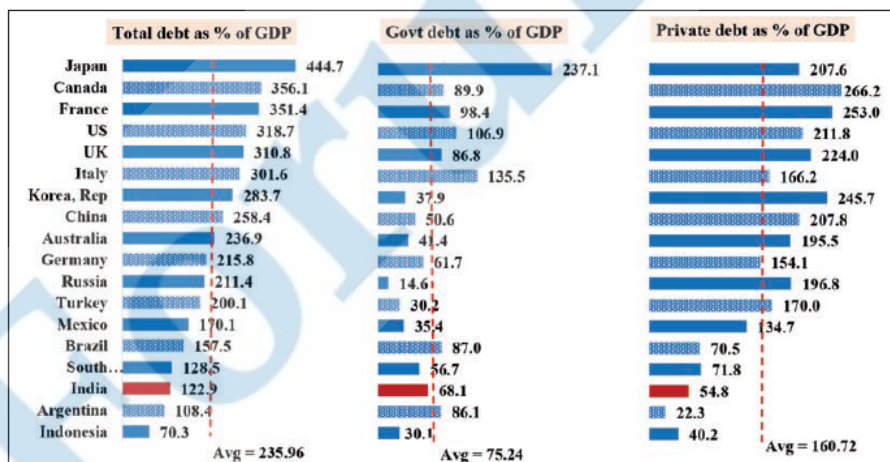
- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

ANS: C

Explanation: A cross-country comparison of debt levels points out that for India, the government debt level as a proportion of GDP is equal to the median in the group of G-20 OECD countries and in the group of BRICS nations.

India's overall debt levels as a per cent of GDP are the lowest amongst the group of G-20 OECD countries and also among the group of BRICS nations.

Figure 17: Debt-to-GDP ratio for India amongst the Rest of the world (2018)



Source: IMF Debt database

Source: Economic Survey 2020 – 2021

Q.8) According to Moody's India's Sovereign credit rating is Baa3 in June 2020. Baa3 is means?

- a) High quality rating
- b) Strong Payment capacity
- c) High risk obligations
- d) Adequate payment capacity

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

ANS: D

Explanation: Sovereign credit ratings seek to quantify issuers' ability to meet debt obligations. When favourable, these can facilitate countries access to global capital markets and foreign investment.

Interpretation	Fitch and S&P	Moody's
Highest quality	AAA	Aaa
High quality	AA+	Aa1
	AA	Aa2
	AA-	Aa3
Strong payment capacity	A+	A1
	A	A2
	A-	A3
Adequate payment capacity	BBB+	Baa1
	BBB	Baa2
	BBB-	Baa3
Likely to fulfill obligations, on going uncertainty	BB+	Ba1
	BB	Ba2
	BB-	Ba3
High-risk obligations	B+	B1
	B	B2
	B-	B3
Vulnerable to default	CCC+	Caa1
	CCC	Caa2
	CCC-	Caa3
Near or in bankruptcy or default	CC	Ca
	C	C
	D	D

Source: IMF (2010)

Source: Economic Survey 2020 – 2021

Q.9) Consider the following statements regarding “Social Progress Index”:

1. It is compiled and released by World Economic Forum.
2. The index is based on three dimensions of social progress, basic Human Needs, foundations of Wellbeing, and opportunity.

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

ANS: B

Explanation: The (“SPI”), compiled by the Social Progress Imperative, a US-based non-profit, ranks 149 countries' social performance over six years (2014-2019).

- It uses 51 indicators including: nutrition, shelter, safety, education, health, personal rights and inclusiveness.
- The Social Progress Index is the first holistic measure of a country's social performance that is independent of economic factors.
- The index is based on a range of social and environmental indicators that capture three dimensions of social progress: Basic Human Needs, Foundations of Wellbeing, and Opportunity.
- The index captures outcomes related to all 17 Sustainable Development Goals and is a comprehensive snapshot of a country's overall progress towards the achievement of the goals.

Source: TMH Ramesh Singh

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Q.10) “It is an economic situation where people hoard financial capital instead of investing or spending it”- is related to which of the following?

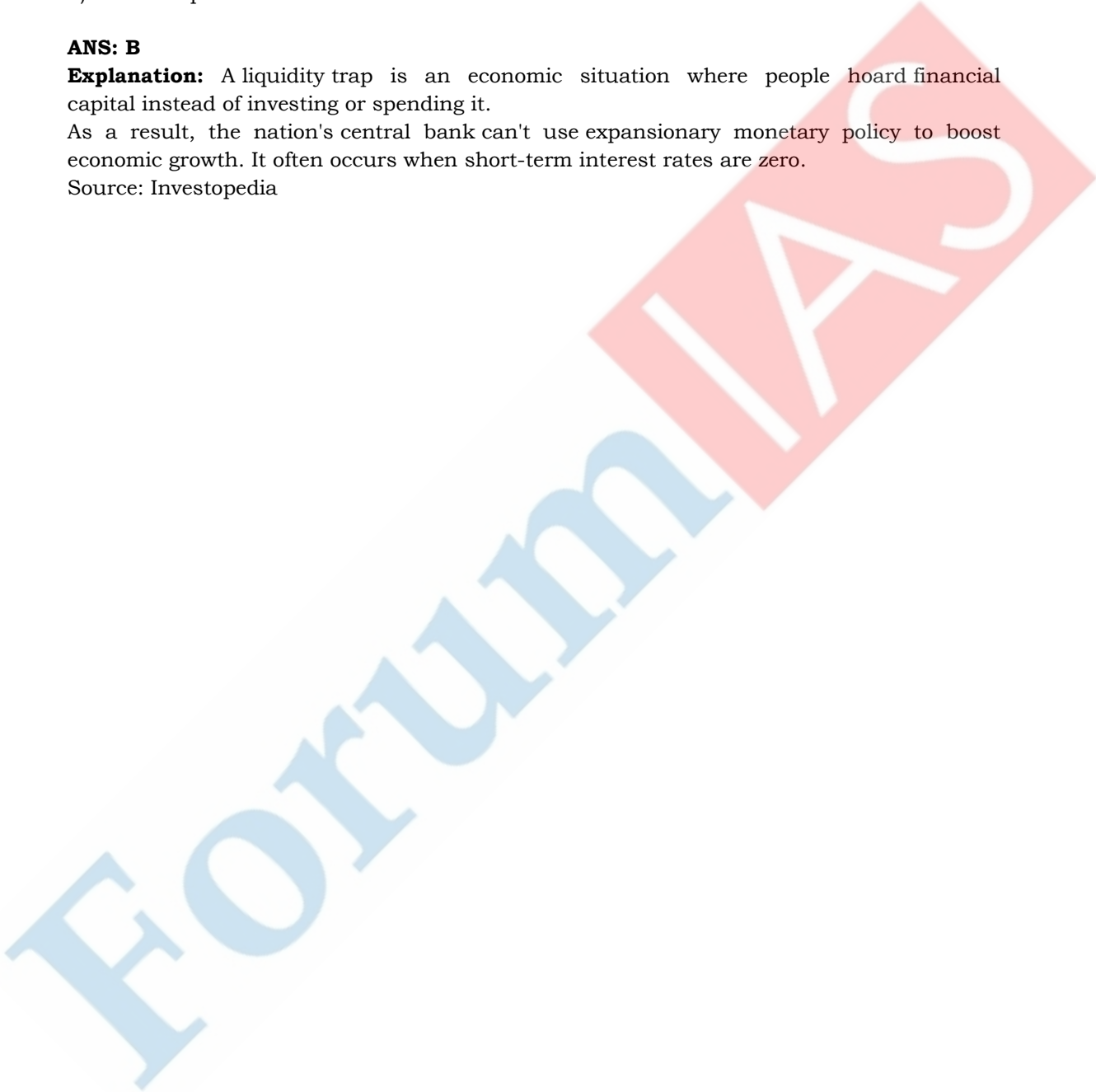
- a) Multiplier effect
- b) Liquidity trap
- c) Thrift
- d) Fiscal trap

ANS: B

Explanation: A liquidity trap is an economic situation where people hoard financial capital instead of investing or spending it.

As a result, the nation's central bank can't use expansionary monetary policy to boost economic growth. It often occurs when short-term interest rates are zero.

Source: Investopedia



Economic Survey 2020 – 2021 and Reports

Q.1) Consider the following statements regarding the entrepreneurship ecosystem in India:

1. India has the 3rd largest entrepreneurship ecosystem in the world.
2. The level of education and the quality of physical infrastructure will influence entrepreneurship ecosystem.

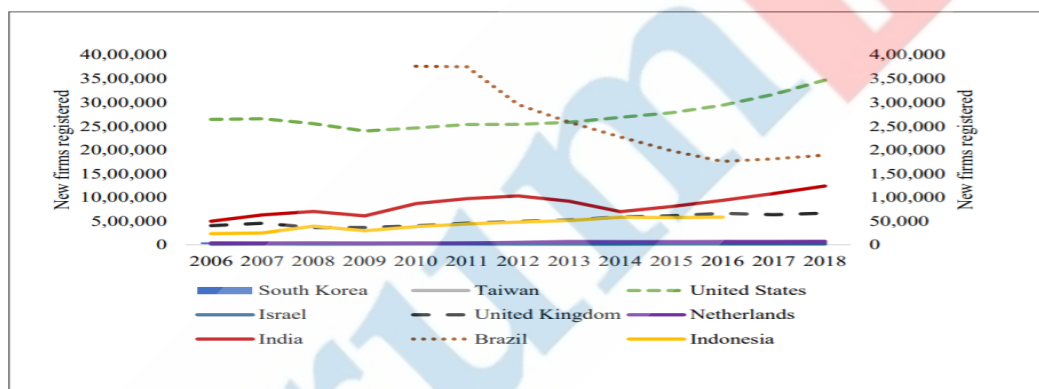
Which of the statements given above is/are correct?

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

ANS: C

Explanation: The chart clearly establishes that India has the 3rd largest entrepreneurship ecosystem in the world.

Figure 1: Comparison of entrepreneurial activity (new firms) across countries



Source: World Bank's EODB Entrepreneurship Data, Business Formation Statistics of the U.S. Census Bureau and Survey Calculations

Note: Secondary axis for India, Brazil and, Indonesia

Literacy, education, physical infrastructure are the key areas that will foster entrepreneurship and thereby job creation and wealth creation.

Source: Economic Survey

Q.2) Consider the following statements regarding the Creative destruction:

1. It refers to the incessant product and process innovation mechanism by which new production units replace outdated ones.
2. It was coined by Joseph Schumpeter.

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

ANS: C

Explanation: Creative destruction refers to the incessant product and process innovation mechanism by which new production units replace outdated ones.

- This restructuring process permeates major aspects of macroeconomic performance, not only long-run growth but also economic fluctuations, structural adjustment and the functioning of factor markets.
- Over the long run, the process of creative destruction accounts for over 50 per cent of productivity growth.
- At business cycle frequency, restructuring typically declines during recessions, and this adds a significant cost to downturns.
- Obstacles to the process of creative destruction can have severe short- and long-run macroeconomic consequences.
- It was coined by Joseph Schumpeter (1942), who considered it 'the essential fact about capitalism'.

Source: Economic Survey

Q.3) The Economic Freedom of the World report is released by which of the following?

- a) Fraser Institute
- b) World Economic Forum
- c) World Trade Organization
- d) The Heritage Foundation

ANS: A

Explanation: The Fraser Institute produces the annual Economic Freedom of the World report in cooperation with the Economic Freedom Network, a group of independent research and educational institutes in nearly 100 countries and territories.

It's the world's premier measurement of economic freedom, measuring and ranking countries in five areas:

- size of the government,
- legal structure and security of property rights,
- access to sound money,
- freedom to trade internationally and regulation of credit,
- labour and business.

Source: The Hindu

Q.4) Consider the following statements regarding the National List of Essential Medicines (NLEM):

1. The first National List of Essential Medicines of India was prepared and released in 1976.
2. The list is prepared by Ministry of Health and Family Welfare.

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

ANS: B

Explanation: The National list of essential medicines is one of the key instruments in a balanced healthcare delivery system of a country which inter alia includes accessible, affordable quality medicine at all the primary, secondary, tertiary levels of healthcare.

- The first National List of Essential Medicines of India was prepared and released in 1976.

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- The National List of Essential Medicines (NLEM), prepared by Ministry of Health and Family Welfare, is a list of medicines considered essential and high priority for India's health needs.
- DPCOs are issued by the Government, in exercise of the powers conferred under section 3 of the ECA to ensure that the medicines listed under NLEM are available at a reasonable price to the general public.

Source: The Hindu

Q.5) Consider the following statements regarding the Gross Fixed Capital Formation:

1. There is a continuous decline in Gross Fixed Capital Formation in India from 2008 to 2018.
2. The World Bank tracks gross capital formation, which it defines as outlays on additions to fixed assets and excludes net changes in Inventories.

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

ANS: C

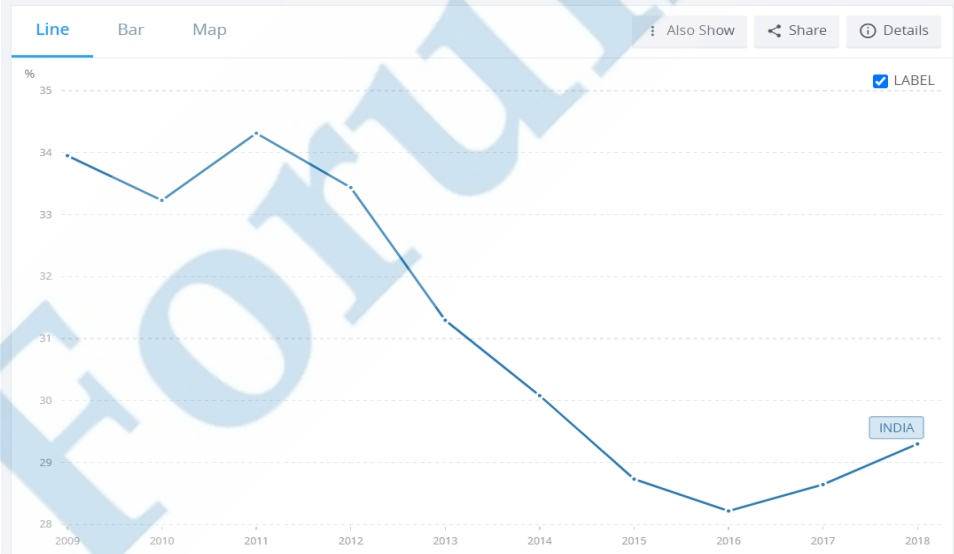
Explanation: Capital formation is a term used to describe the net capital accumulation during an accounting period for a particular country. The term refers to additions of capital goods, such as equipment, tools, transportation assets, and electricity.

GFCF in India is not following a particular trend in last 12 years.

Gross fixed capital formation (% of GDP) - India

World Bank national accounts data, and OECD National Accounts data files.

License: CC BY-4.0



Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories.

- Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases;
- And the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

- Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and work in progress. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.

Source: Economic Survey

Q.6) The term “Smurfing” is related to which of the following?

- a) Ransomware
- b) Money laundering
- c) Round tripping
- d) Cyber attack

ANS: B

Explanation: Smurfing (also called structuring) is a method in which small sizes of money is kept in several number of bank accounts to hide the real identity of the real owner.

- This has been a very commonly used method of money-laundering.
- During the reform period, as more prudential norms of banking regulation evolved, such acts declined in India.

‘Smurfer’ (or ‘money mule’) is a person who does this.

Source: TMH Ramesh Singh

Q.7) The Export-Import Bank of India (EXIM) extends Lines of Credit (LOCs) to promote export and imports. Which of the following is/are eligible for EXIM Lines of Credits?

1. Overseas financial institutions
2. Regional development banks
3. Sovereign governments

Select the correct answer using the codes given below:

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

ANS: D

Explanation: Export-Import Bank of India (EXIM Bank) is a specialized financial institution, wholly owned by Government of India, set up in 1982, for financing, facilitating and promoting foreign trade of India.

EXIM Bank extends Lines of Credit (LOCs) to

- overseas financial institutions,
- regional development banks,
- sovereign governments and
- other entities overseas,

to enable buyers in those countries to import developmental and infrastructure projects, equipments, goods and services from India, on deferred credit terms.

Source: EXIM

Q.8) The “Operation Twist” often seen in news is related to which of the following?

- a) Buy Buying foreign assets
- b) Foreign trade
- c) Lines of Credit
- d) Buy and sale of government securities

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

ANS: D

Explanation: The Reserve Bank of India (RBI) will simultaneously buy and sale government securities worth ₹10,000 crore each in December 2019 under its open market operations — a move aimed at managing the yields.

- The RBI will purchase the longer-term maturities, that are trading at a spread of 150 bps (basis points) over the repo rate, so that the yield of these papers will soften and sell the shorter duration ones.
- The central bank said it will buy ₹10,000 crore of 6.45% government bonds maturing in 2029 and simultaneously sell ₹10,000 crore of short-term bonds maturing in 2020.
- Operation Twist is a move taken by U.S. Federal Reserve in 2011-12 to make long-term borrowing cheaper.

Source: The Hindu

Q.9) The Protected Special Agricultural Zone (PSAZ), sometimes seen in news is related to which of the following state?

- A. Andhra Pradesh
- B. Tamil Nadu
- C. Kerala
- D. Uttar Pradesh

ANS: B

Explanation: The Tamil Nadu Government has introduced a Bill in the Legislative Assembly seeking to declare the Cauvery delta region a Protected Special Agriculture Zone (PSAZ).

- The Bill said, since certain non-farming activities were adversely affecting agriculture in the region, threatening the State's food security, "to protect the agriculture in this region, it is proposed to prohibit certain activities in the region."
- The Bill also sought to establish a 30-member Tamil Nadu Protected Agricultural Zone Authority headed by the Chief Minister to advise the government on various measures to protect and improve farming activities to increase farm production and farm productivity to serve the interest of farmers.
- The proposed PSAZ would comprise of Thanjavur, Tiruvarur and Nagapattinam districts and five blocks each in Cuddalore and Pudukkottai districts.
- These areas have been listed under the First Schedule of the Act, to which the government may add or omit any area in the future.
- The government has identified zinc smelter; iron ore process plants, copper smelter, aluminum smelter, tannery, and ship breaking industries among others as industries that adversely affect agriculture developments in the PSAZ. This list in the Second Schedule of the Act too, is subject to omission and addition subsequently.

Source: The Hindu

Q.10) Which of the following crops are monitored under Market Intelligence and Early Warning System (MIEWS) Portal?

1. Sugar cane
2. Onions
3. Pulses
4. Tomato
5. Potato

Select the correct answer using the code given below:

- a) 2, 4 and 5 only

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- b) 2, 3, 4 and 5 only
- c) 1, 2, 3, 4 and 5
- d) 1, 2, 4 and 5 only

ANS: A

Explanation: The MIEWS Dashboard and Portal is a 'first-of-its-kind' platform for 'real time monitoring' of prices of tomato, onion and potato (TOP) and for simultaneously generating alerts for intervention under the terms of the Operation Greens (OG) scheme.

- This portal is a novel initiative of MoFPI leveraging IT tools and furthering the goals of Digital India.
- The portal would disseminate all relevant information related to TOP crops such as Prices and Arrivals, Area, Yield and Production, Imports and Exports, Crop Calendars, Crop Agronomy, etc in an easy to use visual format.

Source: Sriram's IAS

Science

Q.1) The term “SODAR” is related to which of the following?

- a) Ocean Depth
- b) River erosion
- c) Wind speed
- d) None

ANS: C

Explanation: As the wind energy industry expands and larger-scale projects are developed, wind turbines are becoming larger in rotor diameter as well as in hub height.

- Accordingly it is becoming difficult to accurately assess the wind resource with standard cup anemometers mounted on standard height (60m) meteorological (met) towers.
- For this reason, attention is being directed to other methods of wind speed measurement, such as SODAR (Sonic Detection and Ranging).
- Since the SODAR can measure wind speed as a function of height and is relatively easy to transport and assemble, the technology is very appealing.

Source: NCERT

Q.2) Which of the following event/events produces the “Gravitational Waves”?

1. Colliding black holes.
2. Massive stars exploding at the end of their lifetimes.
3. Colliding neutron stars.

Select the correct answer using the codes given below:

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

ANS: A

Explanation: The strongest gravitational waves are produced by cataclysmic events such as colliding black holes, supernovae (massive stars exploding at the end of their lifetimes), and colliding neutron stars.

Other waves are predicted to be caused by the rotation of neutron stars that are not perfect spheres, and possibly even the remnants of gravitational radiation created by the Big Bang.

Source: NCERT

Q.3) Which of the following statements is/are correct about “Sublimation”?

1. It is a process in which solids directly change to gases.
2. Camphor is an example of solids that undergo sublimation.

Select the correct answer using the codes given below:

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

ANS: C

Explanation: The process in which solids directly change to gases is known as sublimation.

- This occurs when solids absorb enough energy to completely overcome the forces of attraction between them.
- Dry ice and Camphor are examples of solids that undergo sublimation.

Source: NCERT

Q.4) Which of the following statements is/are correct about “Oxides of Nitrogen”?

1. Nitrous oxide is a white colour gas with a mild, pleasant odour and a sweet taste is used as an anesthetic for minor operations.
- 2 Nitric oxide is one of the environmental pollutants generated by internal-combustion engines.

Select the correct answer using the codes given below:

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

ANS: B

Explanation: Nitrogen (N) forms oxides in which nitrogen exhibits each of its positive oxidation numbers from +1 to +5. Nitrous oxide (dinitrogen oxide), N_2O , is formed when ammonium nitrate, NH_4NO_3 , is heated.

- This oxide, which is a colourless gas with a mild, pleasant odour and a sweet taste, is used as an anesthetic for minor operations, especially in dentistry.
- It is called laughing gas because of its intoxicating effect. It is also widely used as a propellant in aerosol cans of whipped cream.
- Gaseous nitric oxide is the most thermally stable oxide of nitrogen and is also the simplest known thermally stable paramagnetic molecule—i.e., a molecule with an unpaired electron.
- It is one of the environmental pollutants generated by internal-combustion engines, resulting from the reaction of nitrogen and oxygen in the air during the combustion process.

Source: NCERT

Q.5) Which of the following statements is/are correct about “Styrene”?

1. It is primarily a synthetic material and easily dissolves in water.
2. It is used in making plastics, paints, automobile parts, food containers and disposal cups.
3. Low levels of styrene also occur naturally in a variety of foods such as fruits, vegetables, nuts, beverages, and meats.

Select the correct answer using the codes given below:

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

ANS: B

Explanation: Styrene is primarily a synthetic chemical. It is also known as vinyl benzene, ethenyl benzene, cinnamene, or phenyl ethylene.

- It's a colorless liquid that evaporates easily and has a sweet smell. It often contains other chemicals that give it a sharp, unpleasant smell.

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- It dissolves in some liquids but doesn't dissolve easily in water. Billions of pounds are produced each year to make products such as rubber, plastic, insulation, fiberglass, pipes, automobile parts, food containers, and carpet backing.
- Most of these products contain styrene linked together in a long chain (polystyrene) as well as unlinked styrene.
- Low levels of styrene also occur naturally in a variety of foods such as fruits, vegetables, nuts, beverages, and meats.

Source: The Hindu

Q.6) Which of the following statements is/are correct about “Lithium”?

1. Lithium along with Hydrogen and Helium are the only elements created at the birth of the Universe.
2. Lithium salts were the first drugs approved by the Food and Drug Administration to treat mania and depression.

Select the correct answer using the codes given below:

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

ANS: C

Explanation: The only chemical elements created at the beginning of our universe were hydrogen, helium and lithium, the three lightest atoms in the periodic table. These elements were formed throughout the universe as a hot gas.

- Lithium makes up a mere 0.0007 percent of the Earth's crust, according to the Jefferson Lab of USA, and it's only found locked up in minerals and salts.
- Those salts have the power to change the brain: Lithium salts were the first drugs approved by the Food and Drug Administration to treat mania and depression, according to the National Institute of Mental Health.

Source: NCERT

Q.7) Which of the following statements is/are correct about “Arthropod”?

1. They are the smallest animal phylum-about 0.5% of all known animals in the world is part of this class.
2. Arthropods are warm blooded animals.

Select the correct answer using the codes given below:

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

ANS: D

Explanation: Arthropods are everywhere and are the largest animal phylum -- about 85% of all known animals in the world are part of this class.

- There are far more species of arthropods than there are species in all the other phylum's (phyla) combined.
- They are spiders, insects, centipedes, mites, ticks, lobsters, crabs, shrimp, crayfish, krill, barnacles, scorpions and many, many others.
- Arthropods are cold blooded -- which means, their body temperature depends on the temperature of the environment surrounding them.

Source: The Hindu

PRELIMS MARATHON COMPILATION FOR THE MONTH OF MARCH (FIRST WEEK), 2021

Q.8) Which of the following micro-organism/s is/are “unicellular”?

1. Bacteria
2. Fungi
3. Protozoa

Select the correct answer using the codes given below:

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

ANS: D

Explanation: Unicellular Organisms.

- Bacteria are tiny, single-celled organisms that get nutrients from their environments.
- Fungi live as either single-celled organisms or multi-cellular organisms. Single-celled fungi are referred to as yeasts. The vast majority of fungi are multi-cellular. A fungus gets nutrition from plants, food, and animals in damp, warm environments.
- Protozoa are one-celled organisms, like bacteria. But they are bigger than bacteria and contain a nucleus and other cell structures, making them more like plant and animal cells.

Source: NCERT

Q.9) The polarimetry technique is recently in news is related to which of the following?

- a) Optical activity
- b) Measuring ozone
- c) Electricity measurement
- d) Pollen Carbon Dating method

ANS: A

Explanation: Polarimetry is a sensitive, nondestructive technique for measuring the optical activity exhibited by inorganic and organic compounds.

- A compound is considered to be optically active if linearly polarized light is rotated when passing through it.
- A team of astronomers has discovered that the closest known brown dwarf, Luhman 16A, shows signs of cloud bands similar to those seen on Jupiter and Saturn.
- The researchers used an instrument on the Very Large Telescope in Chile to study polarised light from the Luhman 16 system. Polarisation is a property of light that represents the direction that the light wave oscillates.
- The polarimetry technique is not limited to brown dwarfs. It can also be applied to exoplanets orbiting distant stars. The atmospheres of hot, gas giant exoplanets are similar to those of brown dwarfs.

Source: The Hindu

Q.10) Consider the following statements regarding the Black Hole:

1. A black hole is a place in space where gravity pulls so much that even light cannot get out.
2. The super-massive black hole at the center of the Milky Way galaxy is called Sagittarius A.
3. The Sun is not a big enough star to make a black hole.

Which of the statements given above is/are correct?

- a) 1 only

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

ANS: D

Explanation: A black hole is a place in space where gravity pulls so much that even light cannot get out. The gravity is so strong because matter has been squeezed into a tiny space. This can happen when a star is dying.

- The largest black holes are called "supermassive." These black holes have masses that are more than 1 million suns together. Scientists have found proof that every large galaxy contains a supermassive black hole at its center.
- The supermassive black hole at the center of the Milky Way galaxy is called Sagittarius A. It has a mass equal to about 4 million suns and would fit inside a very large ball that could hold a few million Earths.
- Even if a black hole the same mass as the sun were to take the place of the sun, Earth still would not fall in.
- The black hole would have the same gravity as the sun. Earth and the other planets would orbit the black hole as they orbit the sun now.
- The sun will never turn into a black hole. The sun is not a big enough star to make a black hole.

Source: NCERT and The Hindu

Science

Q.1) Consider the following statements regarding the Aerosols:

1. They are minute particles suspended in the atmosphere.
2. Cold climate with dry periods decreases the concentration of Aerosols 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

ANS: A

Explanation: Aerosols are minute particles suspended in the atmosphere. When these particles are sufficiently large, we notice their presence as they scatter and absorb sunlight.

- Their scattering of sunlight can reduce visibility (haze) and redden sunrises and sunsets. Aerosols interact both directly and indirectly with the Earth's radiation budget and climate.
- As a direct effect, the aerosols scatter sunlight directly back into space.
- As an indirect effect, aerosols in the lower atmosphere can modify the size of cloud particles, changing how the clouds reflect and absorb sunlight, thereby affecting the Earth's energy budget
- Aerosols come from both natural and human sources—and sometimes both at once. Dust, for example, is scoured from deserts, the dried-out edges of rivers, dry lakebeds, and more.
- Its concentrations in the atmosphere rise and fall with climate; in cold, dry, periods in the planet's history like the last ice age, more dust filled the atmosphere than during warmer stretches of Earth's history.

Source: NCERT and The Hindu

Q.2) Consider the following statements regarding the nucleotide of DNA:

1. It is made up of three parts consists of phosphate group, a 5-carbon sugar, and a nitrogenous base.
2. The four nitrogenous bases in DNA are adenine, cytosine, guanine, and uracil.

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

ANS: A

Explanation: A nucleotide is an organic molecule that is the building block of DNA and RNA.

- They also have functions related to cell signaling, metabolism, and enzyme reactions.
- A nucleotide is made up of three parts: a phosphate group, a 5-carbon sugar, and a nitrogenous base.
- The four nitrogenous bases in DNA are adenine, cytosine, guanine, and thymine.
- RNA contains uracil, instead of thymine.

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- A nucleotide within a chain makes up the genetic material of all known living things.
- They also serve a number of functions outside of genetic information storage, as messengers and energy moving molecules.

Source: NCERT and The Hindu

Q.3) Hydro-dynamic trapping, Solubility trapping and Mineral trapping is related to which of the following?

- a) Carbon sequestration
- b) Deep sea mineral exploration
- c) Shale gas exploration
- d) Bio-diesel extraction

ANS: A

Explanation: In recent years, fundamental research has focused increasingly on the short and long term effects of CO₂ injection into reservoirs to assess the feasibility of **CO₂ storage** on a commercial scale.

- Sequestration processes involve different trapping mechanisms according to the hydrodynamic, physical and chemical conditions in the formation.
- It is common to divide these mechanisms into four different categories: hydrodynamic trapping, residual trapping, solubility trapping, and mineral trapping.

Source: Indian Express

Q.4) Consider the following statements regarding the composite materials:

1. A composite material is a combination of two materials with different physical and chemical properties.
2. They are used in the development of Agni missile and Light Combat Aircraft (Tejas).

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

ANS: C

Explanation: A composite material is a combination of two materials with different physical and chemical properties.

- When they are combined they create a material which is specialised to do a certain job, for instance to become stronger, lighter or resistant to electricity.
- They can also improve strength and stiffness.
- The reason for their use over traditional materials is because they improve the properties of their base materials and are applicable in many situations.
- Use of composite materials in indigenously developed aircraft (Tejas), missiles (Agni) and in defense and civilian sectors is poised for big growth, where Indian companies are set to get into manufacturing mode.

Source: NCERT and The Hindu

Q.5) Consider the following statements regarding the Neutrino:

1. The neutrino is a tiny elementary particle which is part of the atom.
2. Neutrino has a very tiny mass and with electrical charge.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only

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- c) Both 1 and 2
- d) Neither 1 nor 2

ANS: D

Explanation: Proton, neutron, and electron are tiny particles that make up atoms.

- The neutrino is also a tiny elementary particle, but it is not part of the atom. Such particles are also found to exist in nature.
- Neutrino has a very tiny mass and no charge. It interacts very weakly with other matter particles.
- So weakly that every second trillions of neutrinos fall on us and pass through our bodies unnoticed.
- Neutrinos come from the sun (solar neutrinos) and other stars, cosmic rays that come from beyond the solar system, and from the Big Bang from which our Universe originated.
- They can also be produced in the lab.

Source: The Hindu

Q.6) The “Founder effect” is related to which of the following?

- a) Genetic drift
- b) Periodic table
- c) Geographical discoveries
- d) Chemical bonding

ANS: A

Explanation: Genetic drift can have major effects when a population is sharply reduced in size by a natural disaster (bottleneck effect) or when a small group splits off from the main population to found a colony (founder effect).

- The founder effect is another extreme example of drift, one that occurs when a small group of individuals breaks off from a larger population to establish a colony.
- The new colony is isolated from the original population, and the founding individuals may not represent the full genetic diversity of the original population.
- That is, alleles in the founding population may be present at different frequencies than in the original population, and some alleles may be missing altogether.
- The founder effect is similar in concept to the bottleneck effect, but it occurs via a different mechanism (colonization rather than catastrophe).
- Genetic studies done on the people of the Lakshwadeep archipelago by a team, led by K. Thangaraj at CSIR-Centre for Cellular and Molecular Biology (CCMB), for the first time have shown that a majority of human ancestry in Lakshadweep is largely derived from South Asia with minor influences from East and West Eurasia.
- And, there was no evidence of early human migration through the Lakshadweep islands.
- “We found a strong founder effect for both paternal and maternal lineages — a sign that the island population had limited genetic mixing”, said by scientists.

Source: The Hindu & NCERT

Q.7) Which of the following statements regarding the periodic table is/are correct?

1. It was first designed by Dmitri Ivanovich Mendeleev.
2. United Nations announced 2019 as the International Year of the Periodic Table.

Select the correct answer using the code given below:

- a) 1 only
- b) 2 only

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- c) Both 1 and 2
- d) Neither 1 nor 2

ANS: C

Explanation: The United Nations announced 2019 as the International Year of the Periodic Table of the Chemical Elements to highlight its first publication in 1869.

- The periodic table as we know it today was first designed by the Russian scientist Dmitri Ivanovich Mendeleev.
- This year marks the 150th anniversary of the first publication of the periodic table by Mendeleev.
- Since its creation, the periodic table has been at the centre of a lot of vivid debates and is now considered as “one of the most important and influential achievements in modern science reflecting the essence not only of chemistry, but also of physics, biology and other disciplines.”
- Mendeleev’s genius lies in the acknowledgement that at the time, not all the elements were known yet, so he left gaps in the table for undiscovered elements.
- At that time, only 63 elements had been identified. Still the properties of five other elements (the gaps brilliantly added to complete the table) could already been determined using the table.

Source: NCERT

Q.8) Bats serve as natural hosts for numerous viruses including Ebola virus, Nipah virus and corona viruses, but they rarely effected by these viruses. What would be the appropriate reason?

- a) Bats can avoid excessive virus-induced inflammation.
- b) Bats are mostly nocturnal.
- c) These viruses use bats as host and don’t affect the bats.
- d) Due to no impaired production of mRNA (transcript) in bats.

ANS: A

Explanation: Bats serves as natural hosts for numerous viruses including Ebola virus, Nipah virus, corona viruses such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) and the 2019 novel corona virus that has infected nearly 10,000 people and killed over 200 others.

- Even as these viruses cause harm in humans, they rarely if at all cause any harmful effects in bats. This is the case even when the viral load is extremely high in bats.
- The reason why bats can harbour these viruses without getting affected is simply because bats can avoid excessive virus-induced inflammation, which often causes severe diseases in animals and people infected with viruses.
- The researchers found that significantly reduced inflammation in bats was because activation of an important protein — NLRP3 — that recognises both cellular stress and viral/bacterial infections was significantly dampened in bat immune cells.
- Studying further, the researchers found that reduced activation of the NLRP3 protein was in turn due to impaired production of mRNA (transcript).
- Since mRNA production is impaired the NLRP3 protein production gets compromised leading to less amount of the protein being produced.
- But this was not the case with mice and humans — there was no impairment to mRNA production so the NLRP3 protein was unaffected.

Source: The Hindu

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Q.9) The maximum residue limit (MRL) is sometimes seen in news is related to which of the following?

- a) Pesticides level
- b) Pollution level
- c) Water toxicity
- d) Crude exploration

ANS: A

Explanation: The traces pesticides leave in treated products or those left by veterinary drugs in animals are called "residues".

- The traces pesticides leave in treated products or those left by veterinary drugs in animals are called "residues".
- A study of fruits and vegetables grown in the Nilgiris has found that some of the produce might be harbouring high levels of pesticide, beyond what is considered advisable. This was mainly true of potato and carrot.
- While the Food Safety and Standards Authority of India (FSSAI) prescribes a maximum residual level (MRL) for some of the organophosphate pesticides used, it does not prescribe it for some other pesticides used in the cultivation of fruit and vegetables.

Source: NCERT

Q.10) The terms "Rani Rashmoni, Rani Abbakka, Rani Avanti Bai, Rani Durgavati and Rani Gaidinliu" often seen in news is related to which of the following?

- a) Deep sea research vessels
- b) Patrolling vessels
- c) Corvettes
- d) Diesel submarines

ANS: B

Explanation: Rani Rashmoni is a fast patrol vessel, indigenously built by Hindustan Shipyard.

- It is built under the Fast Patrol Vessel (FPV) project of Indian Coast Guard.
- Under the first phase of the project, 5 FPV's has been built.
- The first four such ships are ICGS Rani Abbakka, ICGS Rani Avanti Bai, ICGS Rani Durgavati and ICGS Rani Gaidinliu.

Source: The Hindu