ForumIAS

Prelims Marathon

16th to 22nd January 2023

HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT

History – Peasants and Tribal Movements

Q.1) Which of the following is/are reason/s for the transformation of the agrarian structure in British India?

1. The colonial economic policies.
2. The new land revenue system.
3. The colonial administrative and judicial system.

Choose the correct answer from below given codes:

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

ANS: D

Explanation: The impoverishment of the Indian peasantry was a direct result of the transformation of the agrarian structure due to—

- colonial economic policies,
- ruin of the handicrafts leading to overcrowding of land,
- the new land revenue system,
- Colonial administrative and judicial system.

Source: Tamil Nadu NCERT

Q.2) The "Digambar Biswas and Bishnu Biswas" were related to which of the following event?

a) Pabna Revolt
b) Indigo Revolt
c) Deccan Revolt
d) Moppila Revolt

ANS: B

Explanation: In Bengal, the indigo planters, nearly all Europeans, exploited the local peasants by forcing them to grow indigo on their lands instead of the more paying crops like rice.

- The planters forced the peasants to take advance sums and enter into fraudulent contracts which were then used against the peasants.
- The anger of the peasants exploded in 1859 when, led by Digambar Biswas and Bishnu Biswas of Nadia district, they decided not to grow indigo under duress and resisted the physical pressure of the planters and their lathiyals (retainers) backed by police and the courts.

Source: Tamil Nadu NCERT

Q.3) Consider the following statements regarding "Deccan riots":

1. Initially it was a social boycott movement organized by ryots.
2. As a conciliatory measure, the government enacted the Deccan Agriculturists Relief Act was passed in 1879.

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: In 1874, the growing tension between the moneylenders and the peasants resulted in a social boycott movement organised by the ryots against the "outsider" moneylenders.

- The ryots refused to buy from their shops. No peasant would cultivate their fields. The barbers, washermen, shoemakers would not serve them.
- Soon the social boycott was transformed into agrarian riots with systematic attacks on the moneylenders' houses and shops. The debt bonds and deeds were seized and publicly burnt.
- The Government succeeded in repressing the movement. As a conciliatory measure, the Deccan Agriculturists Relief Act was passed in 1879.

Source: Tamil Nadu NCERT

Q.4) Who among the following was established the "The United Provinces Kisan Sabha"?

a) Gauri Shankar Mishra
b) Madan Mohan Malaviya
c) Jhinguri Singh
d) Durgapal Singh

ANS: A

Explanation: After the 1857 revolt, the Awadh taluqdars had got back their lands. This strengthened the hold of the taluqdars or big landlords over the agrarian society of the province.

- The majority of the cultivators were subjected to high rents, summary evictions (bedakhali), illegal levies, renewal fees or nazrana.
- The First World War had hiked the prices of food and other necessities. This worsened the conditions of the UP peasants.
- Mainly due to the efforts of the Home Rule activists, kisan sabhas were organised in UP.
- The United Provinces Kisan Sabha was set up in February 1918 by Gauri Shankar Mishra and Indra Narayan Dwivedi. Madan Mohan Malaviya supported their efforts.

Source: Tamil Nadu NCERT

Q.5) Consider the following statements regarding "Mappila Revolt":

1. The Mappilas were the Muslim tenants inhabiting the Malabar region where most of the landlords were Hindus.
2. Their grievances centred on lack of security of tenure, high rents, renewal fees and other oppressive exactions.

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 Mappilas were the Muslim tenants inhabiting the Malabar region where most of the landlords were Hindus.

- The Mappilas had expressed their resentment against the oppression of the landlords during the nineteenth century also.
- Their grievances centred around lack of security of tenure, high rents, renewal fees and other oppressive exactions. Soon, the Mappila movement merged with the ongoing Khilafat agitation.
- The leaders of the Khilafat-Non-Cooperation Movement like Gandhi, Shaukat Ali and Maulana Azad addressed Mappila meetings.
- After the arrest of national leaders, the leadership passed into the hands of local Mappila leaders.
- Things took a turn for the worse in August 1921 when the arrest of a respected priest leader, Ali Musaliar, sparked off large-scale riots.
- Initially, the symbols of British authority—courts, police stations, treasuries and offices— and unpopular landlords (jenmies who were mostly Hindus) were the targets.

Source: Tamil Nadu NCERT

Q.6) Which of the following statements is NOT correct about "bardoli satyagraha"?

a) The famous bardoli taluka is located in Surat district.
b) The movement sparked off in January 1926 when the authorities decided to increase the land revenue by 50 per cent.
c) In February 1926, Vallabhbhai Patel was called to lead the movement.
d) The women of Bardoli gave him the title of "Sardar".

ANS: B

Explanation: The Bardoli taluqa in Surat district had witnessed intense politicisation after the coming of Gandhi on the national political scene.

- The movement sparked off in January 1926 when the authorities decided to increase the land revenue by 30 per cent.
- The Congress leaders were quick to protest and a Bardoli Inquiry Committee was set up to go into the issue.
- The committee found the revenue hike to be unjustified. In February 1926, Vallabhbhai Patel was called to lead the movement.
- The women of Bardoli gave him the title of "Sardar".

Source: Tamil Nadu NCERT

Q.7) Who among the following was started the "The All India Kisan Congress/Sabha"?

a) Swami Sahjanand Saraswati
b) K.M. Munshi
c) Lalji Naranji
d) Maulana Azad

ANS: A

Explanation: AIKS was founded in Lucknow in April 1936 with Swami Sahjanand Saraswati as the president and N.G. Ranga as the general secretary.

- A kisan manifesto was issued and a periodical under Indulal Yagnik started. The AIKS and the Congress held their sessions in Faizpur in 1936.
- The Congress manifesto (especially the agrarian policy) for the 1937 provincial elections was strongly influenced by the AIKS agenda.

Source: Tamil Nadu NCERT

Q.8) The "Pahariyas' Rebellion" was related to which of the following?

a) The Rajmahal hills
b) The Malabar region
c) The Coromandal coast
d) The Assam – Meghalaya region

ANS: A

Explanation: The British expansion on their territory led to an uprising by the martial Pahariyas of the Raj Mahal Hills in 1778. The British were forced to usher in peace by declaring their territory as damni-kol area.

Source: Tamil Nadu NCERT

Q.9) The "Chakra Bisnoi" was related to which of the following?

a) The Khond uprising
b) The Santhal Rebellion
c) The Munda Uprisings
d) The Kol Mutiny

ANS: A

Explanation: From 1837 to 1856, the Khonds of the hilly tracts extending from Odisha to the Srikakulam and Visakhapatnam districts of Andhra Pradesh revolted against Company rule. Chakra Bisnoi, a young raja, led the Khonds who were joined by the Ghumsar, Kalahandi and other tribals to oppose the suppression of human sacrifice, new taxes, and the entry of zamindars into their areas. With Chakra Bisnoi's disappearance, the uprising came to an end.

Source: Tamil Nadu NCERT

Q.10) The famous "Rampa Revolts" was related to which of the following?

a) Alluri Sitarama Raju
b) Jatra Bhagat
c) Balram Bhagat
d) Tomma Sora

ANS: A

Explanation: Rampa Revolts led by Alluri Sitarama Raju of the Koyas (1916, 1922-1924; Rampa region in Andhra Pradesh); against British interference; capture and execution of Raju in 1924.

Source: Tamil Nadu NCERT

History – Consolidation of India after Independence

Q.1) Consider the following statements:

1. Sir Cyril Radcliffe was given charge of presiding over two Boundary Commissions: one for the Punjab and the other for Bengal.
2. The commissions were left with five weeks to identify villages as Hindu or Muslim majority on the basis of the 1941 census.

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: Sir Cyril Radcliffe, a lawyer by training with no exposure to India and its reality, was sent from London to re-draw the map of India.

- Its execution was left to the dominion governments of India and Pakistan after August 15, 1947. Radcliffe arrived in India on July 8, 1947.
- He was given charge of presiding over two Boundary Commissions: one for the Punjab and the other for Bengal.
- Two judges from the Muslim community and two from the Hindu community were included.
- The commissions were left with five weeks to identify villages as Hindu or Muslim majority on the basis of the 1941 census.
- It is widely accepted that the census of 1941, conducted in the midst of the World War II led to faulty results everywhere.

Source: Tamil Nadu NCERT

Q.2) The "Instrument of Accession" was brought by which of the following?

a) Indian Councils act 1891
b) Minto – Morley reforms 1909
c) Montague – Chelmsford 1919
d) Government of India Act, 1935

ANS: D

Explanation: Instrument of Accession: A legal document, introduced in Government of India Act, 1935, which was later used in the context of Partition enabling Indian rulers to accede their state to either India or Pakistan.

Source: Tamil Nadu NCERT

Q.3) "The police action" was related to which of the following princely state?

a) Hyderabad
b) Junagarh
c) Mysore
d) Kashmir

ANS: A

Explanation: "The police action" executed in Hyderabad within 48 hours after the Nizam declared his intentions demonstrated that India meant business.

It was the popular anger against the Nizam and his militia, known as the Razakkars, that was manifest in the Telengana people's movement led by the communists there which provided the legitimacy to "the police action".

Source: Tamil Nadu NCERT

Q.4) The "JVP committee" was related to which of the following?

a) Land revenue system
b) Abolition of Zamindari system
c) Linguistic reorganization of states
d) Education system

ANS: C

Explanation: The demand for linguistic reorganisation of states did not stop. The issue gained centre-stage with Pattabhi Sitaramayya's election as the Congress President at the Jaipur session.

A resolution there led to the constitution of a committee with Sardar Vallabhai Patel, Pattabhi Sitaramayya and Jawaharlal Nehru (also called the JVP committee).

Source: Tamil Nadu NCERT

Q.5) The Potti Sriramulu's fast demanding a separate state was belongs to which of the following state?

a) Tamil Nadu
b) Andhra
c) Kerala
d) Karnataka

ANS: B

Explanation: Potti Sriramulu's fast demanding a separate state of Andhra, beginning October 19, 1952 and his death thereafter on December 15, 1952.

Source: Tamil Nadu NCERT

Q.6) Which of the following is/are member/s of Fazli Ali Commission?

1. K.M. Panikkar
2. H.N. Husrau
3. Pattabhi Sitaramayya

Choose the correct answer from below given codes:

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

ANS: B

Explanation: The idea of linguistic states revived soon after the first general elections were over. Potti Sriramulu's fast demanding a separate state of Andhra, beginning October 19, 1952 and his death thereafter on December 15, 1952.
This led to the constitution of the States Reorganisation Commission, with Fazli Ali as Chairperson, and K.M. Panikkar and H.N. Husrau as members. The Commission submitted its report in October 1955.
Source: Tamil Nadu NCERT

Q.7) Which of the following is/are basic principle/s of Indian Foreign Policy?

1. Anti-colonialism
2. Anti-apartheid
3. Afro - Asian Unity

Choose the correct answer from below given codes:

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

ANS: D

Explanation: India's foreign policy was based on certain basic principles. They are: anti-colonialism, anti-imperialism, anti-apartheid or anti-racism, non-alignment with the super powers, Afro - Asian Unity, non-aggression, non-interference in other's internal affairs, mutual respect for each other's sovereignty and territorial integrity, and the promotion of world peace and security.
Source: Tamil Nadu NCERT

Q.8) Which of the following is/are virtue/s of Panch Sheel?

1. Mutual non-aggression
2. Peaceful co-existence
3. Equality and cooperation for mutual benefit

Choose the correct answer from below given codes:

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

ANS: D

Explanation: Panch Sheel (five virtues):

- Mutual respect for each other's territorial integrity and sovereignty
- Mutual non-aggression
- Mutual non-interference in each other's internal affairs
- Equality and cooperation for mutual benefit
- Peaceful co-existence

Source: Tamil Nadu NCERT

Q.9) The famous "Bandung Conference" was related to which of the following?

a) Non – alignment
b) Primary health care
c) Elementary education
d) Human Rights

ANS: A

Explanation: India's contribution to the world, however, was not restricted to its relationship with China and the Panch Sheel. It was most pronounced and lasting in the form of non-alignment and its concretisation at the Bandung Conference.

Source: Tamil Nadu NCERT

Q.10) The Congress ensured the election of Dr B.R. Ambedkar from a seat in?

a) Bombay
b) Nagpur
c) West Bengal
d) Amethi

ANS: A

Explanation: The Constituent Assembly (224 seats) that came into being, though dominated by the Congress, also included smaller outfits such as the communists, socialists and others. The Congress ensured the election of Dr B.R. Ambedkar from a seat in Bombay and subsequently elected him chairman of the drafting committee.

Source: Tamil Nadu NCERT

Science

Q.1) Which of the following is/are not part of Panch Tatva"?

1. Trees
2. Earth
3. Water

Choose the correct answer from below given codes:

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

ANS: A

Explanation: Since early times, human beings have been trying to understand their surroundings.

- Early Indian philosophers classified matter in the form of five basic elements – the "Panch Tatva"– air, earth, fire, sky and water.
- According to them everything, living or non living, was made up of these five basic elements.

Source: Science NCERT 9th Class

Q.2) The intermixing of particles of two different types of matter on their own is called?

a) Fusion
b) Fission
c) Diffusion
d) Cracking

ANS: C

Explanation: The particles of matter intermix on their own with each other. They do so by getting into the spaces between the particles. This intermixing of particles of two different types of matter on their own is called diffusion.

Source: Science NCERT 9th Class

Q.3) Consider the following statements regarding kinetic energy:

1. On increasing the temperature of solids, the kinetic energy of the particles increases.
2. Due to the increase in kinetic energy, the particles start vibrating with greater speed.

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: On increasing the temperature of solids, the kinetic energy of the particles increases. Due to the increase in kinetic energy, the particles start vibrating with greater speed. The energy supplied by heat overcomes the forces of attraction between the particles.

Source: Science NCERT 9th Class

Q.4) Consider the following statements:

1. The minimum temperature at which a solid melts to become a liquid at the atmospheric pressure is called its melting point.
2. The temperature at which a liquid starts boiling at the atmospheric pressure is known as its boiling point.

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: D

Explanation: The minimum temperature at which a solid melts to become a liquid at the atmospheric pressure is called its melting point. The melting point of ice is 273.15 K*.

- The process of melting, that is, change of solid state into liquid state is also known as fusion. When we supply heat energy to water, particles start moving even faster.
- At a certain temperature, a point is reached when the particles have enough energy to break free from the forces of attraction of each other.
- At this temperature the liquid starts changing into gas. The temperature at which a liquid starts boiling at the atmospheric pressure is known as its boiling point.

Source: Science NCERT 9th Class

Q.5) Consider the following statements regarding plasma:

1. It is a state consists of super energetic and super excited particles.
2. The fluorescent tube and neon sign bulbs consist of plasma.

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: Plasma: The state consists of super energetic and super excited particles. These particles are in the form of ionised gases.

- The fluorescent tube and neon sign bulbs consist of plasma. Inside neon sign bulb there is neon gas and inside a fluorescent tube there is helium gas or some other gas.
- The gas gets ionised, that is, gets charged when electrical energy flows through it. This charging up creates a plasma glowing inside the tube or bulb.
- The plasma glows with a special colour depending on the nature of gas. The Sun and the stars glow because of the presence of plasma in them.
- The plasma is created in stars because of very high temperature.

Source: Science NCERT 9th Class

Q.6) Consider the following statements regarding mixture:

1. Mixtures are constituted by more than one kind of pure form of matter.
2. Sugar is a substance which contains only one kind of pure matter and its composition is the same throughout.

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: Mixtures are constituted by more than one kind of pure form of matter. We know that dissolved sodium chloride can be separated from water by the physical process of evaporation.

- However, sodium chloride is itself a pure substance and cannot be separated by physical process into its chemical constituents.
- Similarly, sugar is a substance which contains only one kind of pure matter and its composition is the same throughout.

Source: Science NCERT 9th Class

Q.7) Which of the following is/are correct about alloy?

1. Alloys are mixtures of two or more metals or a metal and a non-metal.
2. Alloys can be separated into their components by physical methods.
3. Brass is a mixture of approximately 30% zinc and 70% copper.

Choose the correct answer from below given codes:

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

ANS: C

Explanation: Alloys are mixtures of two or more metals or a metal and a non-metal and cannot be separated into their components by physical methods.

- But still, an alloy is considered as a mixture because it shows the properties of its constituents and can have variable composition.
- For example, brass is a mixture of approximately 30% zinc and 70% copper.

Source: Science NCERT 9th Class

Q.8) Consider the following statements:

1. The component of the solution that dissolves the other component in it is called the solute.
2. The component of the solution that is dissolved in the solvent is called the solvent.

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: D

Explanation: A solution has a solvent and a solute as its components. The component of the solution that dissolves the other component in it (usually the component present in larger amount) is called the solvent.
The component of the solution that is dissolved in the solvent (usually present in lesser quantity) is called the solute.
Source: Science NCERT 9th Class

Q.9) Which of the following is/are properties of colloid?

1. A colloid is a homogenous mixture.
2. The size of particles of a colloid is too small to be individually seen by naked eyes.
3. Colloids are big enough to scatter a beam of light passing through it and make its path visible.

Choose the correct answer from below given codes:

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

ANS: C

Explanation: A colloid is a heterogeneous mixture. The size of particles of a colloid is too small to be individually seen by naked eyes. Colloids are big enough to scatter a beam of light passing through it and make its path visible. They do not settle down when left undisturbed, that is, a colloid is quite stable.
Source: Science NCERT 9th Class

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

1. Boron
2. Silver
3. Gold

Choose the correct answer from below given codes:

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

ANS: A

Explanation: Some elements have intermediate properties between those of metals and non-metals, they are called metalloids; examples are boron, silicon, germanium etc.
Source: Science NCERT 9th Class

Science

Q.1) Which of the following statements is NOT correct regarding Dalton's atomic theory?

a) All matter is made of very tiny particles called atoms, which participate in chemical reactions.
b) Atoms are divisible particles, which can be created or destroyed in a chemical reaction.
c) Atoms of a given element are identical in mass and chemical properties.
d) Atoms of different elements have different masses and chemical properties.

ANS: B

Explanation: According to Dalton's atomic theory, all matter, whether an element, a compound or a mixture is composed of small particles called atoms. The postulates of this theory may be stated as follows:

(i) All matter is made of very tiny particles called atoms, which participate in chemical reactions.
(ii) Atoms are indivisible particles, which cannot be created or destroyed in a chemical reaction.
(iii) Atoms of a given element are identical in mass and chemical properties.
(iv) Atoms of different elements have different masses and chemical properties.
(v) Atoms combine in the ratio of small whole numbers to form compounds.
(vi) The relative number and kinds of atoms are constant in a given compound.

Source: Science NCERT

Q.2) Which of the following element has highest atomic mass?

a) Oxygen
b) Sodium
c) Magnesium
d) Calcium

ANS: D

Explanation:

Table 3.2: Atomic masses of a few elements

Element	Atomic Mass (u)
Hydrogen	1
Carbon	12
Nitrogen	14
Oxygen	16
Sodium	23
Magnesium	24
Sulphur	32
Chlorine	35.5
Calcium	40

Source: Science NCERT

Q.3) Which of the following element/s has diatomic atomicity?

a) Oxygen
b) Sulphur
c) Helium

Choose the correct answer from below given codes:

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

ANS: A

Explanation: The molecules of an element are constituted by the same type of atoms. Molecules of many elements, such as argon (Ar), helium (He) etc. are made up of only one atom of that element.

- But this is not the case with most of the nonmetals. For example, a molecule of oxygen consists of two atoms of oxygen and hence it is known as a diatomic molecule, O2.
- If 3 atoms of oxygen unite into a molecule, instead of the usual 2, we get ozone, O3. The number of atoms constituting a molecule is known as its atomicity.

Table 3.3 : Atomicity of some elements

Type of Element	Name	Atomicity
Non-Metal	Argon	Monoatomic
	Helium	Monoatomic
	Oxygen	Diatomic
	Hydrogen	Diatomic
	Nitrogen	Diatomic
	Chlorine	Diatomic
	Phosphorus	Tetra-atomic
	Sulphur	Poly-atomic

Source: Science NCERT

Q.4) Consider the following statements regarding Thomson's model of an atom:

1. An atom consists of a positively charged sphere and the electrons are embedded in it.
2. The negative and positive charges are equal in magnitude.

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: Thomson proposed the model of an atom to be similar to that of a Christmas pudding. The electrons, in a sphere of positive charge, were like currants (dry fruits) in a spherical Christmas pudding.

We can also think of a watermelon, the positive charge in the atom is spread all over like the red edible part of the watermelon, while the electrons are studded in the positively charged sphere, like the seeds in the watermelon.
Thomson proposed that:

(i) An atom consists of a positively charged sphere and the electrons are embedded in it.

(ii) The negative and positive charges are equal in magnitude. So, the atom as a whole is electrically neutral.

Source: Science NCERT

Q.5) Consider the following statements regarding neutrons:

1. J. Chadwick discovered the sub atomic particle called as neutron.
2. Neutrons are present in the nucleus of all atoms, except hydrogen.

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: In 1932, J. Chadwick discovered another subatomic particle which had no charge and a mass nearly equal to that of a proton. It was eventually named as neutron.

- Neutrons are present in the nucleus of all atoms, except hydrogen. In general, a neutron is represented as 'n'.
- The mass of an atom is therefore given by the sum of the masses of protons and neutrons present in the nucleus.

Source: Science NCERT

Q.6) Which of the following statement/s is/are correct atom?

1. It is the number of protons of an atom, which determines its atomic number.
2. It is denoted by 'Z'.
3. All atoms of an element have the same atomic number, Z.

Choose the correct answer from below given codes:

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

ANS: D

Explanation: We know that protons are present in the nucleus of an atom. It is the number of protons of an atom, which determines its atomic number. It is denoted by 'Z'.

- All atoms of an element have the same atomic number, Z. In fact, elements are defined by the number of protons they possess.
- For hydrogen, Z = 1, because in hydrogen atom, only one proton is present in the nucleus. Similarly, for carbon, Z = 6.
- Therefore, the atomic number is defined as the total number of protons present in the nucleus of an atom.

Source: Science NCERT

Q.7) Which of the following is/are the atomic species of Hydrogen?

1. Protium
2. Deuterium
3. Tritium

Choose the correct answer from below given codes:

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

ANS: D

Explanation: In nature, a number of atoms of some elements have been identified, which have the same atomic number but different mass numbers.

- For example, take the case of hydrogen atom, it has three atomic species, namely protium (1 1 H), deuterium (2 1 H or D) and tritium (3 1H or T).
- The atomic number of each one is 1, but the mass number is 1, 2 and 3, respectively.

Source: Science NCERT

Q.8) Which of the following statements is/are correct?

1. An isotope of uranium is used as a fuel in nuclear reactors.
2. An isotope of cobalt is used in the treatment of cancer.
3. An isotope of iodine is used in the treatment of goitre.

Choose the correct answer from below given codes:

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

ANS: D

Explanation: Since the chemical properties of all the isotopes of an element are the same, normally we are not concerned about taking a mixture. But some isotopes have special properties which find them useful in various fields. Some of them are:

(i) An isotope of uranium is used as a fuel in nuclear reactors.
(ii) An isotope of cobalt is used in the treatment of cancer.
(iii) An isotope of iodine is used in the treatment of goitre.

Source: Science NCERT

Q.9) Which of the following pair/s is/are correctly matched?

1. J.J. Thomson	:	Discovery of electron
2. E. Rutherford	:	Discovery of the atomic nucleus
3. J. Chadwick	:	Discovered of neutrons

Choose the correct answer from below given codes:

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

ANS: D

Explanation: Credit for the discovery of electron and proton goes to J.J. Thomson and E.Goldstein, respectively. J.J. Thomson proposed that electrons are embedded in a positive sphere.

- Rutherford's alpha-particle scattering experiment led to the discovery of the atomic nucleus. Rutherford's model of the atom proposed that a very tiny nucleus is present inside the atom and electrons revolve around this nucleus. The stability of the atom could not be explained by this model.
- Neils Bohr's model of the atom was more successful. He proposed that electrons are distributed in different shells with discrete energy around the nucleus. If the atomic shells are complete, then the atom will be stable and less reactive.
- J. Chadwick discovered presence of neutrons in the nucleus of an atom. So, the three sub-atomic particles of an atom are: (i) electrons, (ii) protons and (iii) neutrons. Electrons are negatively charged, protons are positively charged and neutrons have no charges.

Source: Science NCERT

Q.10) Who among the following was proposed that electrons are distributed in different shells with discrete energy around the nucleus?

a) Neils Bohr
b) J. Chadwick
c) J.J. Thomson
d) E.Goldstein

ANS: A

Explanation: Neils Bohr's model of the atom was more successful. He proposed that electrons are distributed in different shells with discrete energy around the nucleus. If the atomic shells are complete, then the atom will be stable and less reactive.

Source: Science NCERT

Science

Q.1) Which of the following statement/s is/are correct?

1. Sushruta Samhita explains the importance of Alkalies.
2. Rasopanishada describes the preparation of gunpowder mixture.
3. The Charaka Samhita mentions Indians who knew how to prepare sulphuric acid, nitric acid and oxides of copper, tin and zinc.

Choose the correct answer from below given codes:

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

ANS: D

Explanation: A vast number of statements and material described in the ancient Vedic literature can be shown to agree with modern scientific findings.

- Copper utensils, iron, gold, silver ornaments and terracotta discs and painted grey pottery have been found in many archaeological sites in north India.
- Sushruta Samhita explains the importance of Alkalies.
- The Charaka Samhita mentions ancient indians who knew how to prepare sulphuric acid, nitric acid and oxides of copper, tin and zinc;
- The sulphates of copper, zinc and iron and the carbonates of lead and iron.
- Rasopanishada describes the preparation of gunpowder mixture.

Source: Science NCERT

Q.2) "He was a reputed chemist, an alchemist and a metallurgist. His work Rasratnakar deals with the formulation of mercury compounds. He has also discussed methods for the extraction of metals, like gold, silver, tin and copper" – describes?

a) The Sushruta
b) The Charaka
c) The Nagarjuna
d) The Kautilya

ANS: C

Explanation: Nagarjuna was a great Indian scientist. He was a reputed chemist, an alchemist and a metallurgist. His work Rasratnakar deals with the formulation of mercury compounds.

- He has also discussed methods for the extraction of metals, like gold, silver, tin and copper. A book, Rsarnavam, appeared around 800 CE.
- It discusses the uses of various furnaces, ovens and crucibles for different purposes. It describes methods by which metals could be identified by flame colour.

Source: Science NCERT

Q.3) Which of the following is/are used to make soaps?

1. Mustard oil
2. Oil of Eranda
3. Seeds of Mahua plant

Choose the correct answer from below given codes:

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

ANS: D

Explanation: Chakrapani discovered mercury sulphide. The credit for inventing soap also goes to him.

- He used mustard oil and some alkalies as ingredients for making soap. Indians began making soaps in the 18th century CE.
- Oil of Eranda and seeds of Mahua plant and calcium carbonate were used for making **soap.**

Source: Science NCERT

Q.4) Consider the following statements:

1. Paper was indigenous development of Indians in 7th Century C. E.
2. Ink was used in India from the fourth century.

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: Paper was known to India in the 17th century as account of Chinese traveller I-tsing describes.

Excavations at Taxila indicate that ink was used in India from the fourth century. Colours of ink were made from chalk, red lead and minimum.

Source: Science NCERT

Q.5) The principles of chemistry are applicable in which of the following area/s?

1. Functioning of brain
2. Weather patterns
3. Operation of a computer

Choose the correct answer from below given codes:

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

ANS: D

Explanation: Principles of chemistry are applicable in diverse areas, such as weather patterns, functioning of brain and operation of a computer, production in chemical industries,

manufacturing fertilisers, alkalis, acids, salts, dyes, polymers, drugs, soaps, detergents, metals, alloys, etc., including new material.

Source: Science NCERT

Q.6) The "cisplatin and taxol" drugs are used in the therapy of which of the following?

a) Cancer
b) AIDS
c) Fertility
d) Blood transfusion

ANS: A

Explanation: Chemistry provides methods for the isolation of lifesaving drugs from natural sources and makes possible synthesis of such drugs.

- Some of these drugs are cisplatin and taxol, which are effective in cancer therapy.
- The drug AZT (Azidothymidine) is used for helping AIDS patients.

Source: Science NCERT

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

1. Solids have definite volume and definite shape.
2. Liquids have definite volume but do not have definite shape.
3. Gases have neither definite volume nor definite shape.

Choose the correct answer from below given codes:

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

ANS: D

Explanation: Particles are held very close to each other in solids in an orderly fashion and there is not much freedom of movement. In liquids, the particles are close to each other but they can move around.

However, in gases, the particles are far apart as compared to those present in solid or liquid states and their movement is easy and fast.

Because of such arrangement of particles, different states of matter exhibit the following characteristics:

(i) Solids have definite volume and definite shape.
(ii) Liquids have definite volume but do not have definite shape. They take the shape of the container in which they are placed.
(iii) Gases have neither definite volume nor definite shape. They completely occupy the space in the container in which they are placed.

Source: Science NCERT

Q.8) Which of the following is/are pure substance/s?

1. Copper
2. Silver
3. Glucose

Choose the correct answer from below given codes:

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

ANS: D

Explanation: Pure substances have characteristics different from mixtures. Constituent particles of pure substances have fixed composition.

- Copper, silver, gold, water and glucose are some examples of pure substances.
- Glucose contains carbon, hydrogen and oxygen in a fixed ratio and its particles are of same composition.
- Hence, like all other pure substances, glucose has a fixed composition.
- Also, its constituents—carbon, hydrogen and oxygen—cannot be separated by simple physical methods.

Source: Science NCERT

Q.9) Which of the following is/are chemical properties of an element?

1. Combustibility
2. Melting point
3. Boiling point

Choose the correct answer from below given codes:

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

ANS: A

Explanation: Every substance has unique or characteristic properties. These properties can be classified into two categories — physical properties, such as colour, odour, melting point, boiling point, density, etc., and chemical properties, like composition, combustibility, ractivity with acids and bases, etc.

Source: Science NCERT

Q.10) The "Metre Convention" is related to which of the following?

a) Weights & Measures
b) Isotopes
c) Alloys
d) Weather patterns

ANS: A

Explanation: The International System of Units (in French Le Systeme International d'Unités — abbreviated as SI) was established by the 11th General Conference on Weights and Measures (CGPM from Conference Generale des Poids et Measures).

The CGPM is an inter-governmental treaty organisation created by a diplomatic treaty known as Metre Convention, which was signed in Paris in 1875.

Source: Science NCERT

Science

Q.1) The "mendels law" is related to which of the following?

a) Inheritance
b) Agriculture
c) Industrial processing
d) Fertilization process

ANS: A

Explanation: It was during the mid-nineteenth century that headway was made in the understanding of inheritance.

Gregor Mendel, conducted hybridisation experiments on garden peas for seven years (1856-1863) and proposed the laws of inheritance in living organisms.

Source: Science NCERT

Q.2) Which of the following is/are the principles/laws of Mendel?

1. Law of Dominance
2. Law of Segregation
3. Law of Reproduction

Choose the correct answer from below given codes:

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

ANS: B

Explanation: Based on his observations on monohybrid crosses Mendel proposed two general rules to consolidate his understanding of inheritance in monohybrid crosses.

Today these rules are called the Principles or Laws of Inheritance: the First Law or Law of Dominance and the Second Law or Law of Segregation.

Source: Science NCERT

Q.3) Consider the following statements regarding sex determination in humans:

1. 23 pairs of chromosomes present in humans.
2. 22 pairs are exactly same in both males and females.
3. A pair of X-chromosomes is present in the male, whereas the presence of an X and Y chromosome are determinant of the female characteristic.

Choose the correct answer from below given codes:

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

ANS: B

Explanation: It has already been mentioned that the sex determining mechanism in case of humans is XY type.

- Out of 23 pairs of chromosomes present, 22 pairs are exactly same in both males and females; these are the autosomes.
- A pair of X-chromosomes is present in the female, whereas the presence of an X and Y chromosome are determinant of the male characteristic.

Source: Science NCERT

Q.4) Consider the following statements regarding mutation:

1. It is a phenomenon which results in alteration of DNA sequences.
2. It results in changes in the phenotype of an organism only.

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: Mutation is a phenomenon which results in alteration of DNA sequences and consequently results in changes in the genotype and the phenotype of an organism. In addition to recombination, mutation is another phenomenon that leads to variation in DNA.

Source: Science NCERT

Q.5) Consider the following statements:

1. Down's syndrome results in the gain of extra copy of chromosome 21.
2. Turner's syndrome results due to loss of an X chromosome in human females.

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: Failure of segregation of chromatids during cell division cycle results in the gain or loss of a chromosome(s), called aneuploidy.

- For example, Down's syndrome results in the gain of extra copy of chromosome 21.
- Similarly, Turner's syndrome results due to loss of an X chromosome in human females.

Source: Science NCERT

Q.6) Consider the following statements regarding decomposition:

1. Detritivores break down detritus into smaller particles.
2. Bacterial and fungal enzymes degrade detritus into simpler inorganic substances is called as catabolism.

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: Detritivores (e.g., earthworm) break down detritus into smaller particles. This process is called fragmentation.

- By the process of leaching, water soluble inorganic nutrients go down into the soil horizon and get precipitated as unavailable salts.
- Bacterial and fungal enzymes degrade detritus into simpler inorganic substances. This process is called as catabolism.

Source: Science NCERT

Q.7) Consider the following statements regarding energy flow:

1. Plants capture only 2-10 per cent of the photosynthetically active radiation and this small amount of energy sustains the entire living world.
2. The green plants in the ecosystem are called producers.

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: Except for the deep sea hydro-thermal ecosystem, sun is the only source of energy for all ecosystems on Earth. Of the incident solar radiation less than 50 per cent of it is photosynthetically active radiation (PAR).

- We know that plants and photosynthetic bacteria (autotrophs), fix Sun's radiant energy to make food from simple inorganic materials.
- Plants capture only 2-10 per cent of the PAR and this small amount of energy sustains the entire living world. Further, ecosystems are not exempt from the Second Law of thermodynamics.
- They need a constant supply of energy to synthesise the molecules they require, to counteract the universal tendency toward increasing disorderliness.
- The green plants in the ecosystem are called producers. In a terrestrial ecosystem, major producers are herbaceous and woody plants.
- Likewise, producers in an aquatic ecosystem are various species like phytoplankton, algae and higher plants.

Source: Science NCERT

Q.8) The "Bacteria & Fungi" are known as?

a) Autotrophs
b) Saprotrophs
c) Carnivores
d) Herbivores

ANS: B

Explanation: The detritus food chain (DFC) begins with dead organic matter. It is made up of decomposers which are heterotrophic organisms, mainly fungi and bacteria.

- They meet their energy and nutrient requirements by degrading dead organic matter or detritus. These are also known as saprotrophs (sapro: to decompose).
- Decomposers secrete digestive enzymes that breakdown dead and waste materials into simple, inorganic materials, which are subsequently absorbed by them.

Source: Science NCERT

Q.9) Consider the following statements:

1. The gradual and fairly predictable change in the species composition of a given area is called ecological succession.
2. The entire sequence of communities that successively change in a given area are called sere(s).

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: An important characteristic of all communities is that their composition and structure constantly change in response to the changing environmental conditions.

- This change is orderly and sequential, parallel with the changes in the physical environment.
- These changes lead finally to a community that is in near equilibrium with the environment and that is called a climax community.
- The gradual and fairly predictable change in the species composition of a given area is called ecological succession.
- During succession some species colonies an area and their population become more numerous whereas populations of other species decline and even disappear.
- The entire sequence of communities that successively change in a given area are called sere(s).

Source: Science NCERT

Q.10) Consider the following statements succession of plants:

1. Hydrarch succession takes place in wet areas and the successional series progress from hydric to the mesic conditions.
2. xerarch succession takes place in dry areas and the series progress from xeric to mesic conditions.

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: Based on the nature of the habitat – whether it is water (or very wet areas) or it is on very dry areas – succession of plants is called hydrarch or xerarch, respectively.

- Hydrarch succession takes place in wet areas and the successional series progress from hydric to the mesic conditions.
- As against this, xerarch succession takes place in dry areas and the series progress from xeric to mesic conditions.
- Hence, both hydrarch and xerarch successions lead to medium water conditions (mesic) – neither too dry (xeric) nor too wet (hydric).

Source: Science NCERT

Revision

Q.1) The "Paika rebellion" was related to which of the following state?

a) Odisha
b) Meghalaya
c) Tamil Nadu
d) Kerala

ANS: A

Explanation: The Paiks of Odisha were the traditional landed militia ('foot soldiers' literally) and enjoyed rent free land tenures for their military service and policing functions on a hereditary basis.

The English Company's conquest of Odisha in 1803, and the dethronement of the Raja of Khurda had greatly reduced the power and prestige of the Paiks.

Source: Tamil Nadu NCERT

Q.2) The "Kundara Proclamation" is related to which of the following?

a) Mysore
b) Junagarh
c) Hyderabad
d) Travancore

ANS: D

Explanation: The East India Company's harsh conditions imposed on the state of Travancore, after both of them agreed to a subsidiary alliance arrangement under Wellesley in 1805, caused deep resentment in the region.

- The ruler was not able to pay the subsidy and fell in arrears. The British resident of Travancore was meddling in the internal affairs of the state.
- The highhanded attitude of the Company compelled Prime Minister (or Dalawa) Velu Thampi to rise against the Company, assisted by the Nair troops.
- Velu Thampi addressed a gathering in Kundara, openly calling for taking up arms against the British to oust them from the native soil. This was later known as the Kundara Proclamation.

Source: Tamil Nadu NCERT

Q.3) The term "izaradars" was related to which of the following?

a) Revenue farmers
b) Village guards
c) Priests
d) Fort guards

ANS: A

Explanation: Warren Hastings, in order to meet the war expenses against the Marathas and Mysore, made a plan to earn money by involving English officers as izaradars (revenue farmers) in Awadh.

- He involved Major Alexander Hannay, who was well acquainted with the region, as an izaradar in 1778.
- Hannay secured the izara of Gorakhpur and Bahraich to the amount of 22 lakh rupees for one year.
- In fact, it was a secret experiment by the Company to see for itself just how much surplus money was accessible in practice.

Source: Tamil Nadu NCERT

Q.4) The "Revolt of Moamarias" was related to which of the following?

a) Assam
b) Gujarat
c) Himachal Pradesh
d) Karnataka

ANS: A

Explanation: The revolt of the Moamarias in 1769 was a potent challenge to the authority of Ahom kings of Assam.

- The Moamarias were low-caste peasants who followed the teachings of Aniruddhadeva (1553-1624), and their rise was similar to that of other low-caste groups in north India.
- Their revolts weakened the Ahoms and opened the doors for others to attack the region, for instance, in 1792, the King of Darrang (Krishnanarayan), assisted by his band of burkandazes (the demobilised soldiers of the Muslim armies and zamindars) revolted.

Source: Tamil Nadu NCERT

Q.5) The famous "The Indian League" was started by which of the following?

A. Sisir Kumar Ghosh
B. Surendranath Banerjea
C. Ananda Mohan Bose
D. Mahadeo Govind Ranade

ANS: A

Explanation: The Indian League was started in 1875 by Sisir Kumar Ghosh with the object of "stimulating the sense of nationalism amongst the people" and of encouraging political education.

Source: Tamil Nadu NCERT

Q.6) Which of the following pair/s is/are correctly matched?

1.	Safety Valve Theory	:	Lala Lajpat Rai
2.	Conspiracy Theory	:	R.P. Dutt
3.	Lightning conductor Theory	:	G.K. Gokhale

Choose the correct answer from below given codes:

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

ANS: D

Explanation: Foundational theories of INC and prominent believers: Safety Valve Theory —Lala Lajpat Rai Conspiracy Theory—R.P. Dutt Lightning conductor Theory—G.K. Gokhale.

Source: Spectrum Modern India

Q.7) Sonar is a device that uses ultrasonic waves to measure the distance, direction and speed of?

a) Space objects
b) Under water objects
c) Missile detection
d) Cyclone

ANS: B

Explanation: The acronym SONAR stands for SOund Navigation And Ranging. Sonar is a device that uses ultrasonic waves to measure the distance, direction and speed of underwater objects.

Source: Science NCERT

Q.8) Which of the following Convention is related to the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal?

a) Basel Convention
b) Rotterdam Convention
c) Stockholm Convention
d) Vienna Convention

ANS: A

Explanation: The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted on 22 March 1989 by the Conference of Plenipotentiaries in Basel, Switzerland, in response to a public outcry following the discovery, in the 1980s, in Africa and other parts of the developing world of deposits of toxic wastes imported from abroad.

Source: http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx

Q.9) Which of the following is a sedimentary biogeochemical cycle?

a) Sulphur cycle
b) Oxygen cycle
c) Nitrogen cycle
d) Carbon cycle

ANS: A

Explanation: The movement of nutrient elements through the various components of an ecosystem is called nutrient cycling.

- Another name of nutrient cycling is biogeochemical cycles (bio: living organism, geo: rocks, air, water). Nutrient cycles are of two types: (a) gaseous and (b) sedimentary.
- The reservoir for gaseous type of nutrient cycle (e.g., nitrogen, carbon cycle) exists in the atmosphere and for the sedimentary cycle (e.g., sulphur and phosphorus cycle), the reservoir is located in Earth's crust.

Source: Science NCERT

Q.10) The presence of Susu is an indication of the health of the river. Which of the following is related to susu?

a) Crocodiles
b) Dolphins
c) Fishes
d) Mollusks

ANS: B

Explanation: In the fresh waters of River Ganga and River Brahmaputra, a variety of dolphin locally called Susu (also called blind dolphin) is found. The presence of Susu is an indication of the health of the river. The untreated industrial and urban wastes with high amount of chemicals are killing this species.

Source: NCERT