

Time: 1 hr 40 min

Total Marks: 400

Instructions

1. This Test Booklet contains **100** items (questions). Each item comprises four responses (answer). You will select the response that you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response that you consider the best. In any case, choose **ONLY ONE** response for each item.
2. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. See the directions in the Answer Sheet.
3. All items carry equal marks.
4. Before you proceed to mark in the Answer Sheet the response to the various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions.
5. **Penalty for wrong answers :**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
 - (i). There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as a penalty.
 - (ii). If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
 - (iii). If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

1. The focal length of a concave lens is 0.5 m. The power of the lens is
 - (a) +0.5 D
 - (b) -0.5 D
 - (c) +2.0 D
 - (d) -2.0 D
2. The rule to determine the direction of a force experienced by a straight current carrying conductor placed in a magnetic field which is perpendicular to it is
 - (a) Right-hand thumb rule
 - (b) Fleming's left-hand rule
 - (c) Fleming's right-hand rule
 - (d) Hund's rule
3. One parsec in astronomical units (A.U.) is about
 - (a) 2×10^3 A.U.
 - (b) 2×10^4 A.U.
 - (c) 2×10^5 A.U.
 - (d) 2×10^6 A.U.
4. Which one of the following statements for second law of motion is NOT correct?
 - (a) The net force on a body is proportional to that body's acceleration
 - (b) The net force on a body is in the same direction as the acceleration
 - (c) The time rate of change of momentum is equal to force
 - (d) The net force on a body is proportional to that body's momentum
5. The temperature of a body increases from 310 K to 340 K. The temperature increase in degree Celsius is
 - (a) 20°C
 - (b) 30°C
 - (c) 37°C
 - (d) 67°C
6. Which one of the following statements for the work done by gravity on a body is NOT correct?
 - (a) Work done is independent of the path followed by the body
 - (b) Work done depends only on the vertical distance separating the initial and the final position of the body
 - (c) Work done depends on the path followed by the body
 - (d) Work done is zero if the body is displaced horizontally to the force of gravity
7. Which one among the following statements is correct?
 - (a) Pressure has magnitude as well as direction
 - (b) As we go deeper in a liquid, the pressure decreases
 - (c) Action and reaction forces act on the same object
 - (d) Pascal and N/m^2 represent the same unit
8. Which one of the following wavelength radiations may correspond to an X-ray?
 - (a) 1 nm
 - (b) 10 nm
 - (c) 100 nm
 - (d) 300 nm

9. In a Telescope, compared to the eyepiece lens the objective lens has
(a) larger focal length and larger aperture
(b) larger focal length and smaller aperture
(c) smaller focal length and larger aperture
(d) smaller focal length and smaller aperture
10. The energy, E , of a photon can be expressed as $E = hf$, where f is the frequency and h is Planck's constant. The dimensions of h are the same as that of
(a) linear momentum
(b) angular momentum
(c) displacement
(d) torque
11. The work done by the force acting on an object is zero if the displacement of the object
(a) is in the opposite direction of the direction of force
(b) is in the same direction of the direction of force
(c) is in perpendicular direction of the direction of force
(d) none of above
12. The magnetic field inside a current carrying very long solenoid is
(a) Uniform
(b) Non-uniform
(c) Zero
(d) Highest at mid-point
13. Which one of the following instruments can be used to measure -250°C temperature?
(a) By using a mercury based thermometer
(b) By using an alcohol based thermometer
(c) By using a clinical thermometer
(d) By using thermocouple based thermometer
14. The quantity of heat needed to change unit mass of a substance from liquid to vapour without changing the temperature, is called
(a) specific heat (b) specific latent heat
(c) thermal capacity (d) heat energy
15. The temperature at which "vapour pressure of the liquid in an open vessel becomes equal to the atmospheric pressure" is called
(a) Melting point (b) Boiling point
(c) Liquid point (d) None of the above
16. Which one of the following statements about surface tension is correct?
(a) It increases when temperature increases
(b) It decreases when temperature increases
(c) It will remain same with increase or decrease of temperature
(d) It will always decrease with increase or decrease of temperature
17. A body sinks in water when
(a) density of water is greater than density of body
(b) density of water is less than density of body
(c) density of water is equal to density of body
(d) the body is heavy
18. Why a fielder in the ground gradually pulls his hands backward while catching a fast moving cricket ball?
(a) To reduce the acceleration of the ball
(b) To increase the acceleration of the ball
(c) To increase the velocity of the ball
(d) None of above
19. Bottom of a tank containing water appears to be raised. It is due to
(a) Reflection of light
(b) Refraction of light
(c) Interference of light
(d) Diffraction of light
20. SONAR stands for
(a) Sonographic Natural Ranging
(b) Simple Operational Navigation Ranging
(c) Sound Navigation and Ranging
(d) Simple Operational Natural Ranging
21. Which one of the following radiations has longer wavelength?
(a) X-rays (b) Ultraviolet
(c) Micro Wave (d) Infra-red
22. For a material under static conditions, which one among the following statements is correct?
(a) An insulator can be charged
(b) A perfect conductor can be charged
(c) Both perfect conductor and insulator can be charged
(d) Both perfect conductor and insulator cannot be charged

23. A person can see nearby objects clearly but cannot see distant object distinctly, the person is suffering with
 (a) Hypermetropia (b) Presbyopia
 (c) Myopia (d) None of above
24. The energy is always conserved for a system which is
 (a) isolated only
 (b) non-isolated only
 (c) both isolated and non-isolated
 (d) none of above
25. Suppose, a ball of mass M is thrown upwards from a point A and it reaches up to the highest point B and returns back to point A, which one among the following is correct?
 (a) Kinetic Energy at A = Potential Energy at B
 (b) Kinetic Energy at A = Potential Energy at A
 (c) Kinetic Energy at B = Potential Energy at B
 (d) Kinetic Energy at B = Kinetic Energy at A
26. Who among the following presided over the first session of All India Kisan Sabha in Lucknow in April 1936?
 (a) Sahajananda Saraswati
 (b) R. G. Ranga
 (c) Ram Manohar Lohia
 (d) Jayaprakash Narayan
27. Who among the following founded the 'Self-Respect Movement'?
 (a) Jyotiba Phule
 (b) Swami Vivekananda
 (c) E. V. Ramaswami Naicker
 (d) Dr. B. R. Ambedkar
28. Chola inscriptions mention several categories of lands. Which one of the following was meant for the maintenance of school?
 (a) Tirunamattukkani (b) Shalabhoga
 (c) Vellanvagai (d) Pallichhandam
29. Which of the following statements about the Home Rule League are correct?
 1. Lokamanya Tilak set up the Home Rule League at the Bombay Provincial Conference held at Belgaum in April 1916
 2. Annie Besant announced the formation of Home Rule League in September 1916
 3. To avoid friction, Tilak's League was to work in Maharashtra (excluding Bombay city), Karnataka, Central Provinces and Berar, and Besant's League was given charge of the rest of India

Select the answer using the code given below:

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

30. Which one of the following statements about Ishwar Chandra Vidyasagar is NOT correct?
 (a) He was the Principal of Sanskrit College, Calcutta
 (b) He was a Government Inspector of Schools
 (c) He was a Secretary to the Bethune School
 (d) He was the founder of Widow Remarriage Association

31. Match List I with List II and select the answer using the code given below the Lists:

List I (Reformer)		List II (Social Work/Text)	
A.	Vishnu Shastri Pundit	1.	Vedic Physics: Scientific Origin of Hinduism
B.	Karsondas Mulji	2.	Widow Remarriage Association
C.	Debendranath Tagore	3.	Satya Prakash
D.	Raja Ram Mohan Roy	4.	Tattvabodhini Sabha

Code:

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

32. In the Harappan Civilisation, traces of canals have been found at
 (a) Banawali (b) Lothal
 (c) Shortughai (d) Dholavira
33. Arrange the following foreign travellers to India in chronological order, beginning with the earliest:
 1. Peter Mundy
 2. Antonio Monserrate
 3. Afanasii Nikitich Nikitin
 4. Ibn Battuta

Select the answer using the code given below:

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

34. With which of the following was the Bretton Woods System NOT associated
 (a) International Monetary Fund

- (b) Economic recovery after the Second World War
 (c) International Bank for Reconstruction and Development
 (d) Establishment of a monetary system based on floating exchange rate
35. Senguttuvan is the name of
 (a) a Pandya ruler
 (b) a Chera king
 (c) a minister in Satavahana court
 (d) the capital city of the Cheras
36. The *Ramacharita*, an example of *dvyasrya-kavya*, telling two stories simultaneously, was written by
 (a) Subandhu (b) Bhatti
 (c) Sandhyakara (d) Kamban
37. Which of the following Acts established the Board of Control to guide and control the work of the Court of Directors and the Government of India?
 (a) Regulating Act of 1773
 (b) Pitt's India Act of 1784
 (c) Charter Act of 1793
 (d) Charter Act of 1813
38. Who among the following Sikh Gurus laid the foundation of the Khalsa Panth?
 (a) Guru Nanak (b) Guru Arjan
 (c) Guru Hargobind (d) Guru Gobind Singh
39. Which one among the following plans is also known as Mahalanobis Plan?
 (a) First Five Year Plan
 (b) Second Five Year Plan
 (c) Third Five Year Plan
 (d) Sixth Five Year Plan
40. Which of the following were the years of Annual Plans?
 (a) 1956-1957 (b) 1966-1969
 (c) 1975-1976 (d) 1992-1993
41. Consider the following statements about BRICS Summits:
 1. The first BRICS Summit was held in Brazil
 2. BRICS Summits were held in New Delhi on three occasions
 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
42. Placing the earliest first, arrange the following international events in the chronological order:
 1. Introduction of www (World Wide Web)
 2. Advent of Inter-Continental Ballistic Missiles
 3. Launch of first communication satellite
 Select the answer using the code given below:
 (a) 2 - 1 - 3 (b) 1 - 2 - 3
 (c) 3 - 2 - 1 (d) 2 - 3 - 1
43. Which of the following rights under the Constitution of India is/are Fundamental Right(s)?
 1. Right to work
 2. Right to privacy
 3. Right to free and compulsory education in the age bracket of six to eighteen years
 Select the answer using the code given below:
 (a) 1 and 2 (b) 2 and 3
 (c) 2 only (d) 3 only
44. Consider the following statements with regard to flags of International Organisations:
 1. The flag of EU has a circle of gold stars on a white background
 2. The Flag of the UN carries two pairs of olive tree branches
 3. The ASEAN flag carries blue, red, white and yellow colours
 How many of the above statements is/are correct?
 (a) Nil (b) 1 (c) 2 (d) 3
45. Which one of the following committees is NOT associated with decentralisation of Panchayati Raj institutions in India?
 (a) Balwant Rai Mehta Committee
 (b) Ashok Mehta Committee
 (c) L. M. Singhvi Committee
 (d) Abhijit Sen Committee
46. The reaction that occurs on passing carbon dioxide gas through lime water is
 (a) $\text{CaCO}_3 + \text{H}_2\text{O} + \text{CO}_2 \rightarrow \text{Ca}(\text{HCO}_3)_2$
 (b) $\text{Ca}(\text{OH})_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$
 (c) $\text{CaO} + \text{CO}_2 \rightarrow \text{CaCO}_3$
 (d) $\text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2 \rightarrow \text{CaCO}_3 + 2\text{HCl}$
47. Which one of the following statements is NOT correct?
 (a) Water of crystallisation is the fixed number of water molecules present in one formula unit of a salt

- (b) The molecular formula of Plaster of Paris is $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
- (c) Washing soda is used for removing the permanent hardness of water
- (d) The atmosphere of Venus is made up of thick white and yellow clouds of sulphuric acid
48. Which one of the following type of medicines is used for treating indigestion?
- (a) Analgesic (b) Antiseptic
(c) Antibiotic (d) Antacid
49. Which one of the following is NOT present in cement?
- (a) $2\text{CaO} \cdot \text{SiO}_2$ (b) $3\text{CaO} \cdot \text{SiO}_2$
(c) $4\text{CaO} \cdot \text{SiO}_2$ (d) $3\text{CaO} \cdot \text{Al}_2\text{O}_3$
50. Which one of the following is NOT a chemical change?
- (a) Burning of coal
(b) Rusting of metal
(c) Melting of ice
(d) Reaction of acid with base
51. Which one of the following statements is NOT correct?
- (a) The interconversion of states of matter is a physical change
(b) During burning of a candle, both chemical and physical changes take place
(c) During a physical change, the chemical composition of molecules changes
(d) Rusting of iron is a chemical change
52. Which one of the following is NOT a heterogeneous mixture?
- (a) Sulphur in carbon disulphide
(b) Mixture of sugar and salt crystals
(c) Sandy water
(d) Sulphur in water
53. Match List I with List II and select the answer using the code given below the Lists:

List I (Element)		List II (Atomicity)	
A.	Phosphorus	1.	2
B.	Nitrogen	2.	1
C.	Neon	3.	8
D.	Sulphur	4.	4

Code:

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

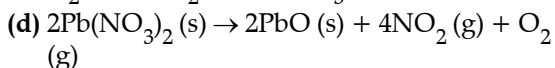
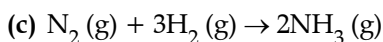
54. In the following redox reaction, which compound is acting as a reducing agent?
- $$\text{N}_2\text{H}_4 + 2\text{H}_2\text{O}_2 \rightarrow \text{N}_2 + 4\text{H}_2\text{O}$$
- (a) H_2O_2 (b) N_2H_4
(c) N_2 (d) H_2O
55. Which one of the following is considered to be the purest source of water?
- (a) River water (b) Sea water
(c) Well water (d) Rain water
56. Which one of the following salts is responsible for temporary hardness of water?
- (a) Sulphates of calcium
(b) Chlorides of magnesium
(c) Bicarbonates of magnesium
(d) Sulphates of magnesium
57. Match List I with List II and select the answer using the code given below the Lists:

List I (Reaction)		List II (Type)	
A.	$\text{CaO (s)} + \text{H}_2\text{O (l)} \rightarrow \text{Ca(OH)}_2\text{(aq)}$	1.	Single displacement
B.	$\text{CaCO}_3\text{(s)} \rightarrow \text{CaO (s)} + \text{CO}_2\text{(g)}$	2.	Double displacement
C.	$\text{Pb (s)} + \text{CuCl}_2\text{(aq)} \rightarrow \text{PbCl}_2\text{(aq)} + \text{Cu (s)}$	3.	Combination
D.	$\text{Na}_2\text{SO}_4\text{(aq)} + \text{BaCl}_2\text{(aq)} \rightarrow \text{BaSO}_4\text{(s)} + 2\text{NaCl (aq)}$	4.	Decomposition

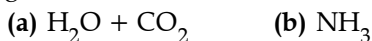
Code:

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

58. Which one of the following is an endothermic reaction?
- (a) $\text{CH}_4\text{(g)} + 2\text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)} + 2\text{O}_2\text{(g)}$
(b) $\text{C}_6\text{H}_{12}\text{O}_6\text{(aq)} + 6\text{O}_2\text{(g)} \rightarrow 6\text{CO}_2\text{(g)} + 6\text{H}_2\text{O(l)}$



59. Which one of the following is known as 'water gas'?



60. Which one of the following statements is NOT correct?

(a) Diamond is hard due to extended covalent bonding in it

(b) Fullerene is composed of five and six membered rings

(c) Diamond is a good conductor of electricity

(d) Graphite is used as a lubricant

61. Arrange the following zones in ascending order in terms of their latitudinal extent on the Earth's surface:

1. Equatorial zone 2. Mid latitude zone

3. Subarctic zone 4. Tropical zone

Select the answer using the code given below:

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

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

62. Consider the following statements with reference to Feldspar mineral:

1. Half of the earth's crust is composed of feldspar

2. It has light cream to salmon pink colour

3. Magnesium is a common element in all types of feldspar

Which of the statements given above is/are correct?

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

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

63. Consider the following pairs with reference to sedimentary rocks and the process of their formation:

	Sedimentary Rock	Process of Formation
1.	Chert	Chemically formed
2.	Geyserite	Organically formed
3.	Shale	Mechanically formed

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

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

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

64. Which of the following statements is/are correct?

1. Oceanic trenches are very significant in the study of plate movements

2. Oceanic trenches are associated with active volcanoes and strong earthquakes

Select the answer using the code given below:

(a) 1 only (b) 2 only

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

65. Which of the following statements with reference to shadow zones in an event of an earthquake is/are correct?

1. Zone between 105° and 145° from epicentre was identified as the shadow zone for both P-waves and S-waves

2. The shadow zone of P-waves is much larger than that of the S-waves

Select the answer using the code given below:

(a) 1 only (b) 2 only

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

66. Which one among the following volcanic island chains is NOT associated with mid-oceanic ridge?

(a) Azores Islands (b) Ascension Islands

(c) Hawaiian Islands (d) Tristan da Cunha

67. Consider the following statements with reference to sea waves:

1. The height of waves is determined by wind speed, wind duration and fetch

2. The energy of a wave is proportional to the square of its height

3. Waves retain most of their energy as they travel across the deep ocean

Which of the statements given above is/are correct?

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

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

68. Which of the following statements with reference to soil forming processes is/are correct?

1. Translocation, enrichment, removal and transformation are different classes of soil forming processes

2. In translocation, fine particles are transported downward by eluviation and accumulate in lower horizons by illuviation

Select the answer using the code given below:

(a) 1 only (b) 2 only

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

69. Consider the following statements with reference to structure of the Earth's atmosphere:

1. Thickness of the troposphere is greatest at the equator
2. The air temperature of the tropopause is highest above the poles
3. The temperature in troposphere decreases at the rate of 1°F for every 165 m of height

Which of the statements given above is/are correct?

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

70. Which of the following are the factors that cause variation in the amount of insolation on the Earth?

1. Rotation of the earth on its axis
2. Length of the day
3. Distribution of land and water on the earth

Select the answer using the code given below:

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

71. Consider the following conditions favourable for the formation and intensification of Tropical Storms:

1. Presence of the Coriolis force
2. Upper divergence above the sea level system
3. High variations in the vertical wind speed

Which of the conditions given above is/are correct?

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

72. Which of the following factors influence the ocean currents?

1. Coriolis force
2. Gravity
3. Heating by solar energy
4. Wind

Select the answer using the code given below:

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

73. Which of the following is/are warm ocean current(s)?

1. Alaska Current
2. Agulhas Current
3. Falkland Current
4. West Australian Current

Select the answer using the code given below:

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

74. State of Assam shares borders with how many other countries and Indian states respectively?

- (a) 2 countries and 6 Indian states respectively
(b) 2 countries and 7 Indian states respectively
(c) 3 countries and 7 Indian states respectively
(d) 3 countries and 6 Indian states respectively

75. Which one of the following is the northernmost river basin of the Deccan Plateau?

- (a) Chambal (b) Mahi
(c) Narmada (d) Tapi

76. Laterite soil in India is rich in which of the following?

1. Calcium 2. Nitrogen
3. Phosphate 4. Potash

Select the answer using the code given below:

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

77. Which of the following statements with reference to crops cultivated in India is/are correct?

1. Bajra grows well in sandy and shallow black soils, whereas red and shallow black soil is suited for Ragi
2. Bajra is predominantly grown in states like Rajasthan, Uttar Pradesh and Maharashtra, while Ragi is mainly cultivated in Karnataka, Tamil Nadu and Himachal Pradesh

Select the answer using the code given below:

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

78. Match List I with List II and select the answer using the code given below the Lists:

	List I (City)	List II (Mineral)
A.	Bewar	1. Manganese
B.	Balaghat	2. Mica
C.	Bilaspur	3. Iron-ore
D.	Ballary	4. Bauxite

Code:

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

79. Which one among the following is NOT a beneficiary state from the Vindhyachal Power Plant of the NTPC?

- (a) Gujarat (b) Goa
(c) Maharashtra (d) Uttar Pradesh

80. Consider the following pairs with reference to Thermal Power Plants and their location in respective states in India:

	Thermal Power Plant	Located in State
I.	Panki	Uttar Pradesh
II.	Parli	Karnataka
III.	Vijayawada	Telangana
IV.	Vanakbari	Gujarat

How many of the pairs given above is/are correctly matched?

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

81. The book 'The Origin of Species by Means of Natural Selection' was authored by

- (a) Charles Darwin
(b) Carolus Linnaeus
(c) Barbara McClintock
(d) Copernicus

82. The headquarters of World Meteorological Organisation (WMO) is located at

- (a) Switzerland (b) Scotland
(c) South Africa (d) Italy

83. The optimum pH at which the enzymes pepsin and trypsin of the human alimentary canal works are

- (a) pH 2.0 and 7.9, respectively
(b) pH 4.5 and 3.5, respectively
(c) pH 9.5 and 4.5, respectively
(d) pH 7.0 and 8.0, respectively

84. The amount of air breathed in and out during a normal respiration by human lungs is referred to as

- (a) Vital capacity
(b) Tidal volume
(c) Inspiratory volume
(d) Total lung capacity

85. Which one among the following statements about arteries and veins in humans is NOT correct?

- (a) Arteries carry blood away from heart while veins bring blood towards the heart

(b) Pulmonary arteries always carry oxygenated blood while Pulmonary veins always carry deoxygenated blood

(c) Arteries have thicker and more elastic walls compared to veins in general

(d) Arteries do not have valves but veins do have valves

86. Identify the functions that are controlled by the hind brain of human being

- (a) Involuntary actions such as blood pressure, salivation vomiting, etc.
(b) Controlling the regions receiving sensory impulses from receptors
(c) Controlling the movement of voluntary muscles
(d) Sensation of hunger or being full

87. Iodised salt is a vital part of our diet as it is essential for the synthesis of

- (a) Estrogen (b) Thyroxine
(c) Insulin (d) Adrenalin

88. The menstrual cycle in females is controlled by hormones that are secreted by

- (a) Ovary and lacrimal gland
(b) Ovary and sebaceous gland
(c) Ovary and pituitary gland
(d) Prostate and pituitary gland

89. Which one of the following blood cells type secrete large number of antibodies during an immune response of the body?

- (a) Neutrophils (b) Eosinophils
(c) Lymphocytes (d) Monocytes

90. Which of the following organelles have their own DNA and ribosomes?

- (a) Endoplasmic reticulum and Golgi bodies
(b) Mitochondria and Chloroplast
(c) Endoplasmic reticulum and cytoskeleton
(d) Cell wall and nucleolus

91. What is the nickname of the National Men's Hockey Team of Australia?

- (a) The Kangaroos (b) The Boomers
(c) The Dolphins (d) The Kookaburras

92. Which one of the following organisations has completed 150 years of service to the nation in the year 2025?

- (a) Botanical Survey of India
(b) Survey of India
(c) India Meteorological Department
(d) Press Trust of India

93. Which of the following statements about 'Jalvahak' is/are correct?

1. It is a newly commissioned naval ship inducted into Indian Navy
2. It is a major policy for cargo promotion unveiled by the Government of India

Select the answer using the code given below:

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

94. How many rural districts does Mahatma Gandhi National Rural Employment Guarantee Act cover as on 2024-25?

- (a) 600 (b) 740
(c) 700 (d) 680

95. Under which one of the following initiatives does the NITI Aayog support interested States to establish a State Institution for Transformation (SIT)?

- (a) NITI for States Platform
(b) Bharat Ke Badhte Kadam
(c) State Support Mission
(d) Aspirational Block Programme

96. Which one of the following Indian States account for the maximum deposits of Bauxite and Chromite?

- (a) Andhra Pradesh (b) Madhya Pradesh
(c) Jharkhand (d) Odisha

97. Consider the following statements with regard to the National Technology Day:

1. It commemorates the momentous events of 11th May 1998, when India conducted successful nuclear tests under Operation Shakti
2. The official theme for the National Technology Day 2025 is 'School to Startups - Igniting Young Minds to Innovate'

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

98. Which of the following were added in India as Ramsar Site in the year 2025?

1. Sakkarakottai Bird Sanctuary
2. Udhwa Lake
3. Rudrasagar Lake
4. Bakhira Wildlife Sanctuary

Select the answer using the code given below:

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

99. Consider the following statements about Cricket player Virat Kohli:

1. He is the only captain to have scored seven double centuries in Test Cricket
2. He is the only Indian cricketer with most centuries as a captain
3. He is the first Indian captain to achieve twin centuries on captaincy debut
4. He holds the record for the most double centuries by an Indian in Test Cricket

Which of the statements given above are correct?

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

100. Ethereum, Tether, Solana and Cardano are all forms of

- (a) Crypto currency
(b) Artificial Intelligence (AI) Startups
(c) Humanoid Robots
(d) Medical apps

Answer Key

Q. No	Answer Key	Chapter's Name	Topic's Name
1	d	Physics	Ray Optics Total Internal Reflection, Power of Lens
2	b	Physics	Magnetic Effect of Current and Magnetism Fleming's Right Hand Rule, Solenoid/ Bar Magnet
3	c	Physics	Physical World and Unit and Measurements Units and Dimension
4	d	Physics	Force and Laws of Motion Force and Friction or b. Inertia, Motion on an Inclined Plane
5	b	Physics	Heat & Thermodynamics Temperature, Thermal Expansion
6	c	Physics	Work, Energy and Power Work done, Linear Momentum, Kinetic Energy or b. Potential Energy, Conservation of Momentum/Energy
7	d	Physics	Mechanical Properties of Matter Topic: a. Bernoulli's Principle, Pressure Exerted by Liquid Column
8	a	Physics	Properties of Oxygen, Hydrogen & Oxidation and Reduction Properties of X ray, Cathode ray & Anode ray
9	a	Physics	Ray Optics Optical Instruments, Human Eye Structure and Eye Defects
10	b	Physics	Physical World and Unit and Measurements Units and Dimension
11	c	Physics	Work, Energy and Power Work done, Linear Momentum, Kinetic Energy
12	a	Physics	Magnetic Effect of Current and Magnetism Fleming's Right Hand Rule, Solenoid/ Bar Magnet
13	d	Physics	Heat & Thermodynamics Temperature, Thermal Expansion
14	b	Physics	Heat & Thermodynamics Specific Heat, Thermal Capacity, Latent Heat
15	b	Physics	Heat & Thermodynamics Temperature, Thermal Expansion
16	b	Physics	Mechanical Properties of Matter Surface Tension, Pressure Exerted by Solids

Q. No	Answer Key	Chapter's Name	Topic's Name
17	b	Physics	Mechanical Properties of Matter Buoyant Force / Buoyancy, Streamline Flow
18	a	Physics	Force and Laws of Motion Force and Friction
19	b	Physics	Ray Optics Refraction, Refractive Index
20	c	Physics	Oscillation and Waves Terms/ Properties of Sound Waves, Ultrasonic Waves
21	c	Physics	Properties of Oxygen, Hydrogen & Oxidation and Reduction Properties of X ray, Cathode ray & Anode ray
22	a	Physics	Electrostatics Electric Charges, Electric Field Lines
23	c	Physics	Ray Optics Optical Instruments, Human Eye Structure and Eye Defects
24	a	Physics	Work, Energy and Power Potential Energy, Conservation of Momentum/Energy
25	a	Physics	Work, Energy and Power Potential Energy, Conservation of Momentum/Energy
26	a	History	All-India Kisan Sabha (1936)
27	c	History	Self-Respect Movement (1925)
28	b	History	Chola Inscriptions (Land categories)
29	d	History	Home Rule League (Tilak & Besant)
30	d	Social Reform	Widow Remarriage Act (1856)
31	c	History	Reformers & Associations (Match)
32	b	History	Harappan Civilization – Lothal
33	c	History	Foreign Travellers (Chronology)
34	d	Economics	Bretton Woods System (1944)
35	b	History	Sangam Literature – Senguttuvan Chola
36	c	History	Ramacharita – Dvyasrya-kavya
37	b	History	Pitt's India Act (1784) – Board of Control
38	d	History	Sikhism – Khalsa Panth (1699)
39	b	Economics	Second Five-Year Plan (1956–61)
40	b	Economics	Annual Plans (1966–69, 1990–92)
41	d	Current Affairs	BRICS Summits
42	d	Science & Tech	ICBM, Satellites, WWW (Chronology)
43	b	Polity	Fundamental Rights & DPSP

Q. No	Answer Key	Chapter's Name	Topic's Name
44	c	International Org.	Flags – EU, UN, ASEAN
45	d	Polity	Panchayati Raj Committees
46	b	Chemistry	Chemical equations and Laws of Chemical Combination -Types and characteristics of chemical reaction
47	b	Chemistry	Elements, Compounds, and Mixtures - Important compounds like carbonates, Bicarbonates, halides, sulphates, nitrates and their uses
48	d	Biology	Constituents of Food -Balanced Diet
49	c	Chemistry	Elements, Compounds, and Mixtures - Properties and Uses of Important compounds
50	c	Chemistry	Elements, Compounds, and Mixtures
51	c	Chemistry	Physical and Chemical Properties of Matter
52	a	Chemistry	Elements, Compounds, and Mixtures - Characteristics of compounds and pure substances
53	a	Chemistry	Elements, Compounds, and Mixtures - Types of Separation technique, Preparation and Uses of elements of different group
54	b	Chemistry	Properties of Oxygen, Hydrogen & Oxidation and Reduction - Oxidation, Reduction and Redox reaction
55	d	Chemistry	Properties of Air and Water Hardness of Water, Contamination in water, Air and soil
56	c	Chemistry	Properties of Air and Water Hardness of Water, Contamination in water, Air and soil
57	c	Chemistry	Chemical equations and Laws of Chemical Combination -Types and characteristics of chemical reaction
58	d	Chemistry	Chemical equations and Laws of Chemical Combination -types and characteristics of chemical reaction
59	d	Chemistry	Elements, Compounds, and Mixtures -Properties and Uses of Important compounds
60	c	Chemistry	Carbon and its forms Properties of allotropes of carbon
61	c	Social Science - Geography	Latitudes and Longitudes, Concept of time

Q. No	Answer Key	Chapter's Name	Topic's Name
62	b	Geography	Minerals – Feldspar
63	d	Geography	Sedimentary Rocks
64	c	Geography	Oceanic Trenches
65	a	Geography	Earthquakes – Shadow Zones
66	c	Geography	Volcanic Islands (Hotspot vs Ridge)
67	d	Geography	Ocean Waves
68	c	Geography	Soil Formation Processes
69	a	Geography	Atmosphere – Troposphere
70	d	Geography	Insolation Variation
71	c	Geography	Tropical Storm Conditions
72	d	Geography	Factors affecting Ocean Currents
73	b	Geography	Warm & Cold Currents
74	b	Geography	Assam – Borders
75	c	Geography	Deccan River Basin (Mahi)
76	d	Social Science - Geography	Regional Geography of India-Natural vegetation, soil, Environment
77	c	Geography	Crops – Bajra & Ragi
78	c	Geography	Mineral Regions (Match)
79	d	Geography	NTPC Vindhyaachal Power Plant
80	a	Geography	Thermal Power Plants
81	a	Biology	Darwin's Origin of Species
82	a	Institutions	World Meteorological Organization
83	a	Biology	Elementary knowledge of Human Body and its important organs- Digestion of Food, Excretory System
84	b	Biology	Tidal Volume
85	b	Biology	Elementary knowledge of Human Body and its important organs- Human Circulatory System, Nervous System
86	a	Biology	Elementary knowledge of Human Body and its important organs- Human Circulatory System, Nervous System
87	b	Biology	Elementary knowledge of Human Body and its important organs- Endocrine Glands, Coagulation of Blood
88	c	Biology	Elementary knowledge of Human Body and its important organs- Endocrine Glands, Coagulation of Blood
89	c	Biology	Elementary knowledge of Human Body and its important organs- Human Circulatory System, Nervous System

Q. No	Answer Key	Chapter's Name	Topic's Name
90	b	Biology	Basis of Life-Cells, Protoplasm's and Tissues, - b. Cell Organelles, Endoplasmic Reticulum.
91	d	Sports	Australian Hockey Team (Kookaburras)
92	c	Current Affairs	IMD – 150 Years (1875–2025)
93	b	Economics	Jalvahak Policy – Inland Cargo
94	a	Polity/Economics	MGNREGA – Coverage
95	c	Polity/Economics	NITI Aayog – SIT under SSM
96	d	Geography	Minerals – Bauxite & Chromite
97	a	Current Affairs	National Technology Day
98	c	Environment	Ramsar Sites (2025 additions)
99	d	Sports	Indian Cricket Captain Records
100	a	Economics	Cryptocurrencies

■■■

OSWAAL

360

ANSWERS WITH EXPLANATIONS

1. Option (d) is correct.

Explanation:

$$P = \frac{1}{f} = \frac{1}{-0.5} = -2D$$

-ve sign as focal length if concave is negative.

2. Option (b) is correct.

Explanation: To determine the direction of the force experienced by a conductor placed in magnetic field is determined using Fleming's left hand rule. To determine direction of induced emf just like in case of generator, Fleming's right hand rule is used.

3. Option (c) is correct.

Explanation: Parsec is a large unit to measure distance.

$$1 \text{ parsec} = 2.06 \times 10^5 \text{ AU}$$

4. Option (d) is correct.

Explanation: As per second law of motion; force is proportional to rate of change of momentum not on momentum. Hence option (d) is incorrect.

5. Option (b) is correct.

Explanation: We know, $K = C + 273$

$$\Rightarrow \Delta C = (K_2 - 273) - (K_1 - 273)$$

$$\Rightarrow \Delta C = \Delta K = 340 - 310 = 30^\circ\text{C}$$

6. Option (c) is correct.

Explanation: In case of conservative forces like gravity, work done is a state function; it depends only on initial and final position and is independent of the path.

In case of non-conservative forces like friction, work depends on path followed by an object.

7. Option (d) is correct.

Explanation:

$$P = \frac{F}{A} = \frac{N}{m^2} \text{ or Pascal}$$

Pressure is a scalar quantity not a vector.

8. Option (a) is correct.

Explanation:

$$\lambda_{X \text{ rays}} \sim 0.1 \text{ nm to } 10 \text{ nm}$$

9. Option (a) is correct.

Explanation: To gather more light for better vision, the objective lens has larger focal length and larger aperture than that of eyepiece lens.

10. Option (b) is correct.

Explanation: [Planck constant] = [Angular momentum]

11. Option (c) is correct.

Explanation: If $F \perp s$, so work done is zero.

$$\Rightarrow W = Fs \cos 90^\circ = Fs \times 0 = 0 \text{ J}$$

12. Option (a) is correct.

Explanation: In case of ideal solenoid,

Inside: magnetic field is uniform

Outside: magnetic field is zero

13. Option (d) is correct.

Explanation:

Hg thermometer: ~ -38 to 250°C

Clinical thermometer: 32 to 42°C

Alcohol thermometers are used for low temperature but it also freezes around -114°C

Thermocouple based thermometer have wide range from -270°C to very high temperature.

14. Option (b) is correct.

Explanation: Specific heat is the heat needed to raise the temperature of an object. Latent heat is the heat absorbed or released to convert one kg of any object from one state to another.

15. Option (b) is correct.

Explanation: When in an open vessel, vapor pressure of liquid becomes equal to atmospheric pressure, it starts boiling.

16. Option (b) is correct.

Explanation: Surface tension decreases with increase in temperature.

17. Option (b) is correct.

Explanation: A body sinks when its density is greater than that of water.

18. Option (a) is correct.

Explanation: Pulling hands backwards while catching a ball increases the time which in turn decreases change in momentum or acceleration. Hence impact of force is reduced.

19. Option (b) is correct.

Explanation: Due to change in media, i.e. from water to air, refraction of light takes place, hence we see raised platform of pool.

20. Option (c) is correct.

Explanation: SONAR: Sound navigation and ranging. It is used by ships for navigation, to marine operations. It uses reflected sound waves to detect objects under water.

21. Option (c) is correct.

Explanation: $\lambda_{\text{microwaves}} > \lambda_{\text{IR}} > \lambda_{\text{UV}} > \lambda_{\text{X-rays}}$

22. Option (a) is correct.

Explanation: A conductor can hold charges just like insulators. In case of perfect conductor, flow of charges occurs within conductor violating static condition.

23. Option (c) is correct.

Explanation: In myopia far point comes down to a certain value from infinity, hence people face difficulty in seeing far objects.

In Hypermetropia, people can see far object clearly but have difficulty in seeing nearby objects.

24. Option (a) is correct.

Explanation: Energy remains conserved in case of isolated system. In case of non-isolated system, exchange of energy takes place continuously.

25. Option (a) is correct.

Explanation: To throw an object upward we need to give it some kinetic energy. As per conservation of energy, kinetic energy of object transfers into potential energy, as it rises upwards. At highest point entire kinetic energy gets converted into potential energy.

$$\text{i.e., } KE_A = PE_B$$

26. Option (a) is correct.

Explanation: The first session of the All-India Kisan Sabha was held in Lucknow in April 1936, presided over by Swami Sahajanand Saraswati, a prominent peasant leader and

freedom fighter. He strongly advocated for farmers' rights, land reforms, and abolition of zamindari, laying the foundation for India's organized peasant movement.

27. Option (c) is correct.

Explanation: The Self-Respect Movement was founded in 1925 by E.V. Ramasamy, popularly known as Periyar, in Tamil Nadu. It aimed to promote rational thinking, equality, and social justice by opposing caste discrimination, Brahminical dominance, and gender inequality. The movement empowered non-Brahmins and inspired reforms in politics, education, and social life.

28. Option (b) is correct.

Explanation: Chola inscriptions mention different land categories such as Vellanvagai (for cultivation), Pallichhandam (for Jain institutions), Tirunamattukkani (for temples), and Shalabhoga (assigned for the maintenance schools or educational institutions). This system highlighted the Cholas' administrative efficiency and their support for learning and cultural development in society.

29. Option (d) is correct.

Explanation: Lokamanya Tilak established his Home Rule League at the Bombay Provincial Conference in Belgaum in April 1916. Annie Besant announced her League in September 1916. To prevent overlap, Tilak's League worked in Maharashtra, Karnataka, Central Provinces, and Berar, while Besant's League covered the rest of India.

30. Option (d) is correct.

Explanation: Ishwar Chandra Vidyasagar, a great social reformer, strongly advocated widow remarriage and played a key role in passing the Hindu Widows' Remarriage Act of 1856, but he did not establish a separate Widow Remarriage Association.

31. Option (c) is correct.

Explanation:

A.	Vishnu Shastri Pundit	1.	Vedic Physics: Scientific Origin of Hinduism
B.	Karsondas Mulji	2.	Widow Remarriage Association
C.	Debendranath Tagore	4.	Tattvabodhini Sabha
D.	Raja Ram Mohan Roy	3.	Satya Prakash

32. Option (b) is correct.

Explanation: Archaeological evidence at Lothal, an important Harappan port city in Gujarat, shows traces of canals and dockyards used for trade and water management. This highlights the Harappans' expertise in hydraulic engineering and maritime activities, making Lothal a key centre of commerce and culture.

33. Option (c) is correct.

Explanation: The chronological order of these foreign travellers to India, from earliest to latest, is:

Ibn Battuta (14th century, 1304–1369)

Afanasii Nikitich Nikitin (15th century, 1465–1472)

Antonio Monserrate (16th century, 1525–1600s)

Peter Mundy (17th century, 1597–1667)

34. Option (d) is correct.

Explanation: The Bretton Woods System (1944) created the IMF and the World Bank (IBRD), aiming at post-war economic recovery and stability. It introduced a fixed exchange rate system linked to the US dollar and gold, not a floating exchange rate, which came much later.

35. Option (b) is correct.

Explanation: Senguttuvan, also known as the Red Chera, was a famous early Chera ruler mentioned in Tamil Sangam literature. He is celebrated for his military achievements, justice, and patronage of Tamil culture. His reign is remembered as a significant period in South Indian history.

36. Option (c) is correct.

Explanation: The Ramacharita is a famous example of dvayasrya-kavya, a poetic style narrating two stories simultaneously—in this case, the story of Lord Rama and the story of the Pala king Ramapala. Written by Sandhyakara Nandi in the 12th century, it highlights literary brilliance and historical significance.

37. Option (b) is correct.

Explanation: This Act established the Board of Control in Britain to supervise and regulate the policies of the East India Company through its Court of Directors. It created a dual system of control—Company officials handled administration, while the British government guided political and military affairs in India.

38. Option (d) is correct.

Explanation: In 1699, Guru Gobind Singh, the tenth Sikh Guru, founded the Khalsa Panth

at Anandpur Sahib. He initiated followers with Amrit (holy nectar) and established the principles of equality, courage, and devotion. The Khalsa symbolized a community of saint-soldiers dedicated to protecting justice and faith.

39. Option (b) is correct.

Explanation: The Second Five Year Plan (1956–1961) is known as the Mahalanobis Plan, formulated by economist P.C. Mahalanobis. It emphasized rapid industrialization, focusing on heavy industries and capital goods. This plan aimed to build India's long-term economic strength by prioritizing the public sector and reducing dependence on imports.

40. Option (b) is correct.

Explanation: During this period, due to wars, drought, and economic instability, the government could not implement a regular Five-Year Plan. Instead, Annual Plans were introduced for three consecutive years until the Fourth Five Year Plan (1969–1974) began. Similar Annual Plans also occurred in 1990–1992.

41. Option (d) is correct.

Explanation: The first BRICS Summit was held in Yekaterinburg, Russia in 2009, not Brazil. Also, BRICS Summits in India were held only twice—in 2012 (New Delhi) and 2016 (Goa), not three times. Therefore, both statements given in the question are incorrect.

42. Option (d) is correct.

Explanation: Chronologically: first came the advent of Inter-Continental Ballistic Missiles (ICBMs) in the late 1950s, then the launch of the first communication satellite (Telstar 1) in 1962, and finally the introduction of the World Wide Web (WWW) in 1989 by Tim Berners-Lee.

43. Option (b) is correct.

Explanation: Right to work is not a Fundamental Right; it is a Directive Principle of State Policy. Right to privacy is recognized as a Fundamental Right under Article 21 (Right to Life and Personal Liberty).

Right to free and compulsory education (ages 6–18) is a Fundamental Right under Article 21A.

44. Option (c) is correct.

Explanation: The EU flag has 12 gold stars on a blue background, not white, so statement 1 is wrong. The UN flag correctly shows a world map surrounded by two olive branches,

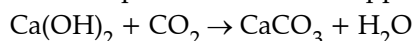
symbolizing peace. The ASEAN flag includes blue, red, white, and yellow colours. Hence, only two statements are correct.

45. Option (d) is correct.

Explanation: The Balwant Rai Mehta Committee (1957), Ashok Mehta Committee (1978), and L.M. Singhvi Committee (1986) were all associated with decentralization and strengthening of Panchayati Raj institutions in India. The Abhijit Sen Committee, however, focused on agricultural pricing and food policy, not Panchayati Raj.

46. Option (b) is correct.

Explanation: When CO_2 gas passed through the solution of lime water formation of calcium carbonate takes place i.e., milkiness appears.



47. Option (b) is correct.

Explanation: The molecular formula of plaster of paris is $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$. $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ is the molecular formula of gypsum.

48. Option (d) is correct.

Explanation:

- (a) Analgesic is used for pain killer
- (b) Antiseptic is used for kill or inhibit microorganism on wounds.
- (c) Antibiotic is used for bacterial infection
- (d) Antacid is used for indigestion

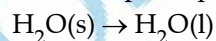
49. Option (c) is correct.

Explanation: While cement contains various compounds involving calcium oxide (CaO), silica (SiO_2), and aluminum oxide (Al_2O_3), the specific combination " $4\text{CaO} \cdot \text{SiO}_2$ " is not a typical constituent of Portland cement.

50. Option (c) is correct.

Explanation: Chemical change is the change in which new chemical substance is formed during the chemical reaction.

Melting of ice is an example of physical change



51. Option (c) is correct.

Explanation: Physical change is the inter conversion of states of matter in which only physical state of the substance changes, no changes in the chemical composition is observed.

52. Option (a) is correct.

Explanation: Heterogeneous mixture is a mixture in which two or more than two substances

are mixed uniformly or the distribution of the substance is uniform throughout the mixture.

Sulphur is soluble in carbon disulphide and forms a homogeneous mixture.

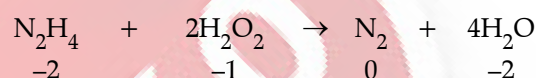
53. Option (a) is correct.

Explanation:

Element		Atomicity	
A.	Phosphorous	4.	4 (P_4)
B.	Nitrogen	1.	2 (N_2)
C.	Neon	2.	1 (Ne)
D.	Sulphur	3.	8 (S_8)

54. Option (b) is correct.

Explanation: Reducing agent is the agent which oxidise itself and reduces other i.e., it loses its electron and increases its oxidation number while other elements gains electron and decreases its oxidation number



The oxidation number of N-atom increases from -2 to 0

$\square$ N_2H_4 is a reducing agent.

55. Option (d) is correct.

Explanation: Rain water is considered to be the purest form or source of water.

56. Option (c) is correct.

Explanation: Temporary hardness of water is due to the presence of bicarbonates of calcium and magnesium while permanent hardness of water is due to the presence of chlorides and sulphates of calcium and magnesium.

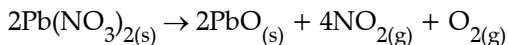
57. Option (c) is correct.

Explanation:

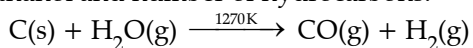
List-I		List-II	
A.	$\text{CaO}_{(s)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{Ca(OH)}_{2(aq)}$	3.	Combination
B.	$\text{CaCO}_{3(s)} \rightarrow \text{CaO}_{(s)} + \text{CO}_{2(g)}$	4.	Decomposition
C.	$\text{Pb(s)} + \text{CuCl}_{2(aq)} \rightarrow \text{PbCl}_{2(aq)} + \text{Cu(s)}$	1.	Single displacement
D.	$\text{Na}_2\text{SO}_{4(aq)} + \text{BaCl}_{2(aq)} \rightarrow \text{BaSO}_{4(s)} + 2\text{NaCl}_{(aq)}$	2.	Double displacement

58. Option (d) is correct.

Explanation: Decomposition reaction are those reaction in which one reactant break down into 2 or more than 2 products. Generally decomposition reaction are endothermic in nature.

**59. Option (d) is correct.**

Explanation: Water gas is a mixture of CO and H₂ which is obtained solid carbon reacts with steam at high temperature. The mixture of CO and H₂ is mainly used for the preparation of methanol and number of hydrocarbons.

**60. Option (c) is correct.**

Explanation: Diamond is a bad conductor of electricity while graphite is a good conductor of electricity. The carbon atom is tetrahedrally packed with another carbon atom due to which no free electron is available for the conduction of electricity.

□ Diamond is a bad conductor not good conductor of electricity.

61. Option (c) is correct.

Explanation: The equatorial zone generally extends from 5° North to 5° South latitude, although some sources define it as 0° to 10° North and South

The tropical zone extends from the Tropic of Cancer in the Northern Hemisphere (approximately 23.5°N latitude) to the Tropic of Capricorn in the Southern Hemisphere (approximately 23.5°S latitude)

The mid-latitudinal zone, or temperate zone, is broadly defined as the region lying between approximately 30° and 60° latitude in both the Northern and Southern Hemispheres.

62. Option (b) is correct.

Explanation: Feldspar makes up almost half of the Earth's crust and usually appears in light cream to salmon pink colors. However, magnesium is not common to all feldspar types; feldspar mainly contains aluminum, silicon, potassium, and sodium, with magnesium present only in some varieties.

63. Option (d) is correct.

Explanation:

Chert: chemically formed from silica deposition.

Geyserite: organically formed from hot spring activity.

Shale: mechanically formed by compaction of clay and silt.

All three sedimentary rocks are correctly matched with their formation processes.

64. Option (c) is correct.

Explanation: Oceanic trenches are deep, narrow depressions in the ocean floor formed at subduction zones, making them crucial for studying plate tectonics and movements. They are also associated with active volcanoes and strong earthquakes, as one tectonic plate is forced beneath another, generating intense geological activity.

65. Option (a) is correct.

Explanation: The P-wave shadow zone lies between 105° and 145° from the earthquake epicentre.

S-waves, however, do not travel through the Earth's liquid outer core, creating a much larger shadow zone than P-waves.

66. Option (c) is correct.

Explanation: The Hawaiian Islands are formed over a hotspot in the middle of the Pacific Plate, not along a mid-oceanic ridge. In contrast, the Azores, Ascension, and Tristan da Cunha Islands are associated with mid-oceanic ridges, where tectonic plates diverge and magma rises to form volcanic islands.

67. Option (a) is correct.

Explanation: The height of waves is determined by wind speed, wind duration and fetch."

These three factors (wind velocity, duration of blowing, and fetch — the distance over water) directly influence wave height.

Statement 2: "The energy of a wave is proportional to the square of its height."

Wave energy $\propto H^2$ (where H = wave height).

Statement 3: "Waves retain most of their energy as they travel across the deep ocean."

In deep water, waves lose little energy, and they can travel thousands of kilometres with minimal loss (swell waves).

68. Option (c) is correct.

Explanation:

Correct: soil-forming processes are classified into translocation, enrichment, removal, and transformation.

Correct: in translocation, fine particles are washed down (eluviation) from upper horizons and deposited (illuviation) in lower horizons.

Both statements are accurate.

69. Option (a) is correct.

Explanation: The troposphere is thickest at the equator due to higher surface heating.

The tropopause is coldest above the poles, not hottest, so statement 2 is wrong.

The temperature lapse rate in the troposphere is about 6.5°C per kilometre, not 1°F per 165 m, making statement 3 incorrect.

70. Option (d) is correct.

Explanation: The amount of insolation received on Earth varies due to multiple factors: the Earth's rotation affects day-night cycles, the length of the day influences solar exposure, and the distribution of land and water affects heating and cooling rates because land and water absorb and release heat differently.

71. Option (c) is correct.

Explanation: Tropical storms form and intensify under specific conditions:

Coriolis force – necessary to give the storm its rotation.

Upper divergence – allows air to rise from the surface, lowering pressure and strengthening the storm.

High vertical wind variation – actually unfavorable, as strong wind shear can disrupt storm formation.

72. Option (d) is correct.

Explanation: The movement of ocean currents is influenced by multiple factors. Coriolis force causes currents to deflect due to Earth's rotation. Gravity drives the flow of water, while solar heating creates temperature differences that move water. Wind also pushes the surface water, collectively shaping the currents.

73. Option (b) is correct.

Explanation: Warm ocean currents carry heated water from the equator toward the poles. Among the options:

Agulhas Current – a warm current along the southeast coast of Africa.

Alaska Current – actually a warm current along the southern coast of Alaska.

Falkland Current and West Australian Current are cold currents.

74. Option (b) is correct.

Explanation: Assam, located in northeast India, shares international borders with 2 countries: Bhutan and Bangladesh. It also borders 7 Indian states: Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, and West Bengal.

75. Option (c) is correct.

Explanation: Narmada is the major river of central India, flows westward through Madhya Pradesh & Gujarat into the Arabian Sea. It is the northernmost large river of the Deccan Plateau

76. Option (d) is correct.

Explanation: Laterite soil is typically deficient in calcium, phosphate, and nitrogen, but it is rich in iron oxide and potash

77. Option (c) is correct.

Explanation: Bajra (pearl millet) grows well in sandy and shallow black soils – correct. Red and shallow black soils are also suitable for certain crops, so this part is generally correct.

Bajra is mainly grown in Rajasthan, Uttar Pradesh, and Maharashtra – correct. Ragi is mostly cultivated in Karnataka, Tamil Nadu, and Himachal Pradesh – also correct.

78. Option (c) is correct.

Explanation:

A.	Bewar	2.	Mica
B.	Balaghat	1.	Manganese
C.	Bilaspur	3.	Iron-ore
D.	Ballary	4.	Bauxite

79. Option (d) is correct.

Explanation: The Vindhyachal Power Plant, operated by NTPC in Madhya Pradesh, is one of India's largest thermal power stations. It generates electricity mainly for nearby states, with Maharashtra being a major beneficiary. The plant plays a key role in meeting regional energy demands and supporting industrial and domestic consumption efficiently.

80. Option (a) is correct.

Explanation: Panki Thermal Power Plant is in Uttar Pradesh.

Parli Thermal Power Plant is in Maharashtra.

Vijayawada Thermal Power Plant is in Andhra Pradesh.

Vanakbori Thermal Power Plant is in Jharkhand.

81. Option (a) is correct.

Explanation: The book "The Origin of Species by Means of Natural Selection" was authored by Charles Darwin in 1859. It introduced the theory of evolution by natural selection, explaining how species evolve over time through the survival of individuals best adapted to their environment.

82. Option (a) is correct.

Explanation: The headquarters of the World Meteorological Organization (WMO) is located in Geneva, Switzerland. It coordinates global efforts in meteorology, climate monitoring, and weather forecasting to support disaster management and sustainable development worldwide.

83. Option (a) is correct.

Explanation: Pepsin and trypsin are both protein-digesting enzymes; pepsin functions in the acidic environment of the stomach (optimum pH of about 1.5-2.0) and is secreted by the stomach while trypsin works in the slightly alkaline conditions of the small intestine (optimum pH of about 7.5-8.0) and is secreted by the pancreas.

84. Option (b) is correct.

Explanation: The amount of air breathed in and out during normal, quiet breathing is called the tidal volume. It represents the regular exchange of air in the lungs without extra effort, typically about 500 ml in an average adult per breath.

85. Option (b) is correct.

Explanation: Arteries typically carry oxygenated blood, and veins carry deoxygenated blood, but the pulmonary vessels are exceptions to this rule. The pulmonary artery carries deoxygenated blood from the heart to the lungs, while the pulmonary vein carries oxygenated blood from the lungs back to the heart.

The remaining options are correct.

86. Option (a) is correct.

Explanation: The hindbrain, particularly the medulla oblongata, is responsible for controlling various involuntary functions like blood pressure, salivation, vomiting, and breathing.

(b) Controlling the regions receiving sensory impulses from receptors is more related to the thalamus.

(c) Controlling the movement of voluntary muscles is primarily handled by the cerebrum, part of the forebrain.

(d) Sensation of hunger or being full is related to the hypothalamus, a part of the forebrain, which is involved in regulating appetite and satiety.

87. Option (b) is correct.

Explanation: Iodine is a crucial component of the thyroid hormones thyroxine (T₄) and

triiodothyronine (T₃). Iodized salt is essential because it provides the necessary iodine for the thyroid gland to synthesize thyroxine, a hormone crucial for regulating metabolism and development, and its deficiency can lead to goitre.

88. Option (c) is correct.

Explanation: The menstrual cycle is primarily regulated by hormones secreted from the ovaries and the pituitary gland. The ovaries produce estrogen and progesterone, which are essential for follicular development, ovulation, and endometrial preparation for potential pregnancy.

The pituitary gland secretes follicle-stimulating hormone (FSH) and luteinizing hormone (LH), which stimulate the ovaries to produce these hormones.

89. Option (c) is correct.

Explanation: Lymphocytes, specifically B cells, are responsible for producing antibodies during an immune response.

Neutrophils are white blood cells that primarily fight infections by engulfing pathogens.

Eosinophils are white blood cells involved in allergic reactions and fighting parasites.

Monocytes are white blood cells also play a role in the immune response, but their main function is phagocytosis rather than antibody production.

90. Option (b) is correct.

Explanation: Both mitochondria and chloroplasts contain their own DNA and ribosomes. They are considered semi-autonomous organelles because they have their own genetic material (DNA) and ribosomes, allowing them to synthesize some of their own proteins.

91. Option (d) is correct.

Explanation: The nickname of the Australian Men's National Hockey Team is the Kookaburras. The name comes from a native Australian bird, symbolizing agility, teamwork, and a distinctive Australian identity in international hockey.

92. Option (c) is correct.

Explanation: The India Meteorological Department (IMD) completed 150 years of service in 2025. Established in 1875, IMD is responsible for weather forecasting, meteorological observations, and climate studies across India.

93. Option (b) is correct.

Explanation: Jalvahak' refers to a major policy for cargo promotion unveiled by the Government of India, aimed at improving inland water transport and boosting cargo movement.

94. Option (a) is correct.

Explanation: As of the 2024–25 period, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) covers approximately 600 rural districts across India. This extensive coverage ensures that the program can effectively reach its intended beneficiaries in villages nationwide, providing a safety net and boosting rural economies.

95. Option (c) is correct.

Explanation: The NITI Aayog supports States to establish a State Institution for Transformation (SIT) under the State Support Mission initiative. This helps states in driving reforms, monitoring developmental programs, and ensuring effective implementation of policies.

96. Option (d) is correct.

Explanation: The Indian state that accounts for the maximum deposits of both Bauxite and Chromite is Odisha. It is rich in mineral resources, especially in the regions of Koraput, Sundergarh, and Angul.

97. Option (a) is correct.

Explanation: National Technology Day commemorates 11th May 1998, when India successfully conducted nuclear tests under Operation Shakti. The theme for 2025 may vary and is not officially confirmed as the one mentioned.

98. Option (c) is correct.

Explanation: In 2025, India added several new wetlands as Ramsar Sites, including Sakkarakottai Bird Sanctuary in Tamil Nadu and Udhwa Lake in Jharkhand. Other additions in Rajasthan were Khichan and Menar. Earlier sites like Rudrasagar Lake and Bakhira Wildlife Sanctuary were designated in previous years.

99. Option (d) is correct.

Explanation: He is the only captain to have scored seven double centuries in Test cricket. He is the Indian cricketer with the most centuries as a captain. He is the first Indian captain to score twin centuries on captaincy debut. He holds the record for the most double centuries by an Indian in Test cricket.

100. Option (a) is correct.

Explanation: Ethereum, Tether, Solana, and Cardano are all types of cryptocurrencies. They are digital or virtual currencies that use blockchain technology for secure, decentralized transactions.