

Time Allowed: 2 Hours

M.M.: 100

Important Instructions:

1. This Test Booklet contains **120** items (questions). Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which 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 directions in the Answer Sheet.
3. **All** items carry equal marks.
4. **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** (0.33) of the marks assigned to that question will be deducted as 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. If the magnification produced by a lens is +2, then the image is:
 - (a) erect, virtual and smaller than the object.
 - (b) inverted, real and smaller than the object.
 - (c) erect, virtual and larger than the object.
 - (d) inverted, real and larger than the object.
2. What is the correct sequence of resistivity of silver, nichrome and glass at room temperature?
 - (a) Silver < Nichrome < Glass
 - (b) Glass < Nichrome < Silver
 - (c) Silver < Glass < Nichrome
 - (d) Nichrome < Silver < Glass
3. At the time of short-circuit, the current in the circuit:
 - (a) reduces substantially.
 - (b) does not change.
 - (c) increases heavily.
 - (d) keeps on fluctuating.
4. Which one of the following statements is **not** correct?
 - (a) An electric motor converts electrical energy into mechanical energy.
 - (b) An electric generator works on the principle of electromagnetic induction.
 - (c) The magnetic field at the centre of a long circular coil carrying current will be parallel straight lines.
 - (d) A wire with green insulation is usually the live wire of an electric supply.
5. A boy completes one round of a circular track of a diameter 200 m in 30 s. What will be the displacement at the end of 3 minutes and 45 seconds?
 - (a) 50 m
 - (b) 100 m
 - (c) 200 m
 - (d) 236 m
6. What happens to the gravitational force between two objects if the mass of one object is doubled and the distance between them is also doubled?
 - (a) The force would remain the same
 - (b) The force would be doubled
 - (c) The force would be halved
 - (d) The force would increase by a factor of 4
7. The number of moles of oxygen gas used in the complete combustion of 1 mole of glucose is:
 - (a) 1
 - (b) 3
 - (c) 6
 - (d) 12
8. Which one of the following is **not** an example of an oxidation reaction?
 - (a) The taste of butter changes if left for a longer period.
 - (b) A white substance is formed when an aqueous solution of barium chloride is mixed with sodium sulphate solution.
 - (c) A reddish-brown powder gets coated on articles made of iron.
 - (d) Wine gets sour with time.

9. Methanoic acid is normally found in:
 (a) muscles (b) urine
 (c) ant stings (d) human brain
10. What is the number of moles of He in 104 g of helium gas?
 (a) 52 (b) 26
 (c) 13 (d) 6.5
11. While burning hydrocarbon fuels, if we see a yellow flame with lots of black smoke, it means that the fuel is:
 (a) made of saturated hydrocarbons.
 (b) made of unsaturated hydrocarbons.
 (c) burning completely.
 (d) wet.
12. The number of saturated and unsaturated bonds in cyclohexane are:
 (a) 9 and 0 respectively
 (b) 18 and 3 respectively
 (c) 18 and 0 respectively
 (d) 9 and 3 respectively
13. Which one of the following statements is true when non-metals are dissolved in water?
 (a) They produce basic oxides
 (b) They produce acidic oxides
 (c) They produce neutral oxides
 (d) They provide hydroxides
14. Which one of the following statements is not correct, with regard to genetically modified organisms?
 (a) In this technique a gene from one organism is isolated and transferred to the cell of another organism.
 (b) This technique has applications only in plants.
 (c) Genes for insect resistance may spread from crop plants to wild plants.
 (d) To produce a transgenic animal the novel genes are inserted at a very early stage of development.
15. Suppose, due to an accident, the delicate lining of the mouth and the oesophagus of a person is injured. In this case, which one of the following tissues will be affected?
 (a) Smooth muscle
 (b) Cuboidal epithelium
 (c) Squamous epithelium
 (d) Striated muscle
16. Which one of the following statements is correct about the cell membrane?
 (a) It is made up of cellulose.
 (b) It is a permeable structure for all substances.
 (c) It is flexible and enables the cell to engulf many materials.
 (d) It does not allow diffusion of gases like oxygen and carbon dioxide.
17. Plants prepare glucose in the process of:
 (a) respiration
 (b) photosynthesis
 (c) degradation
 (d) mineral absorption
18. The disease rickets develops in children due to the deficiency of:
 (a) Vitamin C (b) Vitamin D
 (c) Vitamin A (d) Vitamin B
19. Match List I with List II and select the correct answer using the code given below the lists.
- | List-I
(Blood Vessel) | List-II
(Function) |
|--------------------------|--|
| A. Pulmonary artery | 1. Carries blood from lungs to heart |
| B. Capillaries | 2. Carries blood to heart muscle |
| C. Coronary artery | 3. Connection between arteries and veins |
| D. Pulmonary vein | 4. Carries blood from heart to lungs |
- Code:**
- | | A | B | C | D |
|-----|---|---|---|---|
| (a) | 4 | 3 | 2 | 1 |
| (b) | 4 | 2 | 3 | 1 |
| (c) | 1 | 2 | 3 | 4 |
| (d) | 1 | 3 | 2 | 4 |
20. Which one of the following statements is true with regard to a greenhouse?
 (a) The shorter wavelength infrared radiations from the Sun can enter into the greenhouse while longer wavelength infrared radiations from the ground and the plants inside the greenhouse cannot pass back out through the glass.
 (b) The shorter wavelength infrared radiations from the Sun can enter into the greenhouse and the longer wavelength infrared radiations from the ground and

- the plants inside the greenhouse can also pass back out through the glass.
- (c) The shorter wavelength infrared radiations from the Sun cannot enter into the greenhouse while longer wavelength infrared radiations from the ground and the plants inside the greenhouse can pass back out through the glass.
- (d) No infrared radiation can pass through the glass of the greenhouse.
21. An object weighs 9 N on the surface of the Earth. What would be its weight, when measured on the surface of a planet where the acceleration due to gravity is 9 times that as on the surface of the Earth?
- (a) The weight would remain the same.
 (b) The weight would be equal to 1 N.
 (c) The weight would become 9 times.
 (d) The weight will be reduced to $\frac{1}{9}N$.
22. The twinkling of a star is due to:
- (a) atmospheric reflection of starlight.
 (b) atmospheric refraction of starlight.
 (c) continuous change in the position of the star.
 (d) oscillation of starlight.
23. A convex lens has a focal length of 15 cm. At what distance should an object be placed in front of the lens to get a real image of the same size of the object?
- (a) 15 cm (b) 10 cm
 (c) 30 cm (d) 40 cm
24. Which one of the following statements about biogas is *not* correct?
- (a) It is mainly composed of methane gas.
 (b) It is a non-renewable source of energy.
 (c) It is formed by the decomposition of cow dung in the absence of oxygen.
 (d) It burns without smoke and leaves no residue.
25. Which of the following mineral acids is found in human stomach?
- (a) Hydrochloric acid (b) Lactic acid
 (c) Uric acid (d) Methanoic acid
26. Which one of the following living organisms gives litmus?
- (a) Protozoa (b) Virus
 (c) Lichen (d) *Saccharomyces*
27. Which one of the following is the main reason of acid rains?
- (a) Dissolution of sulphur and nitrogen oxides in rain.
 (b) Dissolution of minerals in rain.
 (c) Dissolution of dust particles in rain.
 (d) Dissolution of soil solution in rain.
28. Mutation in a virus is caused due to a change in its:
- (a) Cell size. (b) Genetic material.
 (c) Shape. (d) Colour.
29. Yeast, which is used to make bread, belongs to the group:
- (a) Protista (b) Fungi
 (c) Monera (d) Protozoa
30. Hyphae are:
- (a) Produced by yeast.
 (b) Thin threads formed by many fungi.
 (c) Reproductive cells.
 (d) Responsible for preventing the cell from losing water in wet conditions.
31. Which one of the following is the first urban settlement, in the world to reach a population size of one million (million-plus city)?
- (a) London (b) Paris
 (c) New York (d) Washington D. C.
32. Which one of the following climatic types (Koppen's Scheme) is best suited to describe the climate of the western fringe of Rajasthan?
- (a) Amw (b) Aw
 (c) Bwhw (d) Cwg
33. Where are the Bermuda Islands located?
- (a) Caribbean Sea
 (b) North Atlantic Ocean
 (c) Gulf of Mexico
 (d) Mediterranean Sea
34. Which one of the following States/Union Territories has the highest percentage of forest area to the total geographical area?
- (a) Arunachal Pradesh
 (b) Lakshadweep
 (c) Nagaland
 (d) Mizoram
35. In India, the period of steady population growth refers to the decade(s) of:
- (a) 1981-2011 (b) 1951-1981
 (c) 1921-1951 (d) 1911-1921
36. Manikaran in Himachal Pradesh is known for:
- (a) Solar energy
 (b) Geothermal energy
 (c) Bioenergy
 (d) Wind energy

37. Who among the following, first mooted the idea of deficit, financing?
 (a) Adam Smith
 (b) Alfred Marshall
 (c) John Maynard Keynes
 (d) Milton Friedman
38. Which of the following is/are the function(s) of environment?
 1. Supplying resources
 2. Sustaining life
 3. Providing aesthetic services
 Select the correct answer using the code given below:
 (a) 1 only (b) 2 and 3 only
 (c) 1, 2 and 3 (d) 1 and 3 only
39. Who among the following formulated the concept of poverty as a measurable development indicator in the Indian subcontinent?
 (a) Dadabhai Naoroji
 (b) Romesh Chandra Butt
 (c) V. K. R. V. Rao
 (d) M. Ranade
40. Which one of the following terms denotes the inputs in terms of tools, machines, buildings, raw materials and money in hand required at any stage of production?
 (a) Fixed capital
 (b) Working capital
 (c) Physical capital
 (d) Human capital
41. Which one of the following inputs is required in less quantity in case of non-farming activities?
 (a) Land (b) Labour
 (c) Capital (d) Raw material
42. Which one of the following statements with regard to the National Rural Employment Guarantee Act, 2005 is correct?
 (a) It ensures 175 days of employment to needy person in rural areas
 (b) It gives higher wages to women workers
 (c) People are generally given both skilled and unskilled jobs.
 (d) This is implemented only in rural areas of India.
43. Which one of the following is **not** mentioned as a form of Emergency in the constitution of India?
 (a) National Emergency
 (b) State Emergency in terms of proclamation of President's Rule in a State
 (c) Financial Emergency
 (d) Health Emergency
44. Which one of the following is **not** provision related to a Money Bill?
 (a) Imposition, abolition, remission, alteration or regulation of any tax.
 (b) Appropriation of moneys out of the Consolidated fund of India.
 (c) Imposition of fines by local authority for local purpose.
 (d) Custody of the Consolidated fund
45. Which of the following items is **not** covered under GST?
 (a) Cosmetics
 (b) Medical grade oxygen
 (c) Jewellery
 (d) Petrol
46. Which of the following statements is/are correct?
 1. Committee on Estimate is an ad hoc committee of the parliament.
 2. Committee on Railway Convention is a standing committee of the parliament.
 Select the correct answer using the code given below:
 (a) 1 only
 (b) 2 only
 (c) Both 1 and 2
 (d) Neither 1 nor 2
47. Which of the following is **not** an Indian form of Socialism?
 (a) Democratic Socialism
 (b) Radical Socialism
 (c) Communication Socialism
 (d) Nehruvian Socialism
48. Which one of the following best describes BRICS?
 (a) A group of five nuclear powers.
 (b) A group of five industrialised nations.
 (c) A group of five major emerging economies.
 (d) A group of five potentially strong UN security council members from the countries of the Global South.
49. Which one of the following is **not** a characteristic feature of Indian Federalism?
 (a) The federating units consented to form a union
 (b) Residuary powers vest with centre
 (c) Single citizenship
 (d) An extensive Union and Concurrent list

50. Which one of the following statements about sculptures at Sanchi is/are correct?
1. In some sculptures there is representation of Shalabhanjika.
 2. The figure of Shalabhanjika is represented by a woman surrounded by lotuses and elephants.
 3. The Shalabhanjika motif was not directly inspired by Buddhist ideas.

select the correct answer using the code given below:

- (a) 1, 2 and 3 (b) 2 and 3 only
(c) 2 only (d) 1 and 3 only
51. In which one of the following years was the first telegraphic connection established between Europe and India?
- (a) 1851 (b) 1854
(c) 1865 (d) 1871
52. Who among the following was the virashaiva Movement in Karnataka?
- (a) Basanava (b) Appar
(c) Sambandar (d) Sundarar
53. The ruins of Hampi were brought to light by which of the following British officers of the East India Company?
- (a) Colonel Colin Mackenzie
(b) James Prinsep
(c) William Jones
(d) James Rennell
54. Which one of the following works was composed by Krishnadevaraya on statecraft in Telugu?
- (a) Amuktamalyada
(b) Jambavati Kalyanam
(c) Rayavachakamu
(d) Satyavadu Parinaya
55. Match List I with List II and select the correct answer using the code given below the lists:

List-I (Soil Type)	List-II (Salient characteristic)
A. Entisols	1. Soils having weakly or quickly developed horizons
B. Inceptisols	2. Weakly developed soils with in horizons

- C. Histosols 3. These soils are very old and highly weathered
- D. Oxisols 4. These soils have very high quantity of organic matter in the upper layers

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

56. A peripediment in a desert or semi-desert region is also known as:
- (a) Inselberg (b) Zeugen
(c) Bajada (d) Playa
57. Individual lava flows are normally only a few feet thick, but over a long period of time, repeated lows may build up a volcano. Such volcanoes are termed as:
- (a) Shield volcano
(b) Composite volcano
(c) Hi nan-volcano
(d) Cinder-cone volcano
58. Isohalinos are lines joining equal:
- (a) temperature
(b) pressure
(c) rainfall
(d) salinity
59. Which one of the following would be considered as Foreign Direct Investment?
- (a) A foreign company buying shares in stock exchanges in India.
(b) A foreign country pension fund investing in Indian stock markets.
(c) A foreign merchant banker buying shares from Indian stock markets.
(d) A foreign entity setting up an ml institution in India.
60. Which one of the following does **not** influence quantity demanded for a good ?
- (a) Good's own price
(b) Price of a complementary good
(c) Price of a substitute good
(d) Prices of inputs into production of the good

61. Infant mortality ratio in which one of the following countries is comparable to that of India?

- (a) China
- (b) United States of America
- (c) Sri Lanka
- (d) None of the above

62. Which of the following factors signify monopolistic competition?

1. Differentiated product
2. Large number of buyers and sellers
3. Barriers to entry
4. Homogeneous products

Select the correct answer using the code given below:

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

63. Article 19(1) of the Constitution of India, as it stands amended, includes which of the following?

1. Freedom of speech and expression.
2. Assemble peaceably and without arms.
3. To acquire and dispose property.
4. To move freely throughout the territory of India.

Select the correct answer using the code given below:

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

64. Which one of the following statements with regard to the Election Commission is **not** correct?

- (a) It conducts elections to the of Rce of the Vice President of India.
- (b) An Election Commissioner can be removed from his office without the recommendation of the Chief Election Commissioner.
- (c) Election Commissioners are appointed by the President of India.
- (d) Governor of a State is constitutionally bound to provide support staff to the Election Commission, if required.

65. Which of the following statements with regard to the Preamble to the Constitution of India is/ are correct?

1. Equality of status and equality of opportunity find mention in the Preamble.
2. The expression 'unity and integrity of the Nation' was not there in the Preamble since the beginning.

Select the correct answer using the code given below:

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

66. In Part -IVA of the Constitution of India, which one of the following is not mentioned as a duty of every citizen of India?

- (a) To render national service when called upon to do so.
- (b) To renounce practices derogatory to the dignity of women.
- (c) To value and preserve a unitary national culture.
- (d) To develop the spirit of inquiry and reform

67. Which of the following terms were used in the Indo-Persian sources of the Mughal period to denote a peasant?

1. Raiyat
2. As ami
3. Muzarian
4. Majur

Select the correct answer using the code given below:

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

68. Who among the following pioneering Bengali women serialized her autobiography Amur Katha between 1910 and 1913?

- (a) Binodini Dasi
- (b) Rashesundari Debi
- (c) Begum Rokeya Sakhawat Hossain
- (d) Kailashbhashini Debi

69. Arrange the following events chronologically starting from the earliest:

1. Ahmedabad Mill Strike
2. Champaran Satyagraha
3. Foundation of the Satyagraha Sabha
4. Jallianwala Bagh Massacre

Select the correct answer using the code given

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

70. The year 1916 is important in Indian history for:

1. Lucknow Session of the Congress
2. Congress-League Pact
3. Formation of Home Rule League

Select the correct answer using the code given below:

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

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

List-I (Railway Zone)	List-II (Headquarters)
A. South-Eastern	1. Secunderbad
B. South-Central	2. Kolkata
C. South-Western	3. Bilaspur
D. South-East-Central	4. Hubli

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

72. Ten Degree Channel is found between:
- North Andaman and Middle Andaman
 - South Andaman and Little Andaman
 - Little Andaman and Car Nicobar
 - Car Nicobar and Great Nicobar
73. Match List I with List II and select the correct answer using the code given below the lists:

List-I (Waterfall)	List-II (State)
A. Barkana	1. Tamil Nadu
B. Dudhsagar	2. Odisha
C. Duduma	3. Karnataka
D. Kiliyur	4. Goa

Code:

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

74. Which one of the following is *not* a resultant of the El Nino effect?
- Distortion of equatorial atmospheric circulation.
 - Flow of the South-East Trade Winds towards the Indian Ocean.
 - Irregularities in the evaporation of sea water
 - Reduction in the amount of planktons which reduces the number of fish in the sea.

75. According to the Constitution of India, which one of the following statements is **not** correct?
- The executive powers of the Union shall be vested in the President of India.
 - Parliament, by law, can confer functions on authorities other than the President of India.
 - The President of India is elected by an electoral college consisting of all Members of Parliament and all Members of all State Legislatures.
 - A person, having held office as the President, shall be eligible for election to that office for the second term.
76. Which one of the following Articles of the Constitution of India requires the Prime Minister of India to furnish information related to decisions of the Council of Ministers to the President of India?
- Article 78
 - Article 74
 - Article 75
 - Article 81
77. Which one of the following statements is **not** correct?
- All executive actions of the Government of India are taken in the name of the President of India.
 - The President of India appoints a person as Attorney General of India provided she/he is qualified to be a Judge of the Supreme Court or a High Court.
 - The total number of Ministers in the Council of Ministers cannot exceed ten percent of the total number of members of the House of People.
 - The President of India is bound to act as per the advice tendered by the Council of Ministers.
78. The issue, 'whether Section 377 of the Indian Penal Code is violative of Articles 21, 14 and 15 of the Constitution of India' was decided in which one of the following cases?
- Shreya Singhal vs Union of India
 - Vishakha vs State of Rajasthan
 - Shayara Bano vs Union of India
 - Naz Foundation vs Government of NCT of Delhi and others
79. Which one of the following writs means 'you may-have the body'?
- Habeas Corpus
 - Mandamus
 - Certiorari
 - Quo Warranto

80. Who among the following belonged to Serampore Mission?
1. William Carey
 2. Joshua Marshman
 3. William Ward
 4. David Hare
- Select the correct answer using the code given below:
- (a) 1 and 2 only (b) 1 and 3 only
(c) 1, 2 and 3 only (d) 2, 3 and 4 only
81. Consider the following statements:
1. In the 19th century, peasants in various parts of India rose in revolt against moneylenders and grain dealers.
 2. In May 1875, at village Supa in Poona District in the Bombay Deccan, peasants attacked shopkeepers, burnt, the bahi khataa (account books), looted grain shops and set fire to the houses of Sahukars.
- 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
82. Which one of the following was not a part of Kautilya's Saptanga Theory of the State?
- (a) Amatya (b) Janapada
(c) Durga (d) Dhamma
83. Consider the following statements about Ashoka's faith in Buddhism:
1. Flurornindei Pillar Inscription and Nigali Sagar Pillar Inscription provide clear evidence of Ashoka's faith in Buddhism.
 2. Minor Rock Edict-I gives evidence of a sudden change in Ashoka's faith in Buddhism.
- 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
84. Which of the following variable(s) is/are displayed in population pyramids?
1. Age-groups
 2. Sex indicators (male and female)
- Select the correct answer using the code given below:
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
85. Match List I with List II and select the correct answer using the code given below the lists:
- | List-I
(Lake) | List-II
(State) |
|------------------|---------------------|
| A. Kailveli | 1. Sikkim |
| B. Khajjiar | 2. Kerala |
| C. Khecheopalri | 3. Himachal Pradesh |
| D. Vembanad | 4. Tamil Nadu |
- Code:
- | | A | B | C | D |
|-----|---|---|---|---|
| (a) | 2 | 1 | 3 | 4 |
| (b) | 2 | 3 | 1 | 4 |
| (c) | 4 | 1 | 3 | 2 |
| (d) | 4 | 3 | 1 | 2 |
86. Which one of the following is the most important factor for the formulation of smog?
- (a) Long winter nights
(b) Formation of an 'inversion lid'
(c) Presence of many air pollutant resources
(d) Thailand Rapid fall in temperature with increasing height above the sea level
87. Mount Thullier (642 m) is an important mountain peak of Andaman and Nicobar Islands. It is located in:
- (a) North Andaman (b) Middle Andaman
(c) South Andaman (d) Great Nicobar
88. Which one of the following land surfaces has the highest albedo?
- (a) A snow covered mountain
(b) A bajTen rocky piedmont surface
(c) A sandy desert
(d) A mangrove forest
89. Which one of the following terms represents maxim, 'no man/person shall be condemned unheard'?
- (a) *Autrefois acquit* (b) *Non bis in idem*
(c) *Autrefois convict* (d) *Audi Alteram Partem*
90. Which one of the following statements about the Speaker of Lok Sabha is **not** correct?
- (a) He shall vacate his office if he ceases to be a member of the House of the People.
(b) He may, at any time, resign by writing his resignation to the President of India.
(c) He may be removed from his office by a resolution of the House of the People

- passed by majority of all the then members of the House.
- (d) While the office of the Speaker is vacant, the duties of the office shall be performed by the Deputy Speaker
91. Which one of the following statements about a Bill of Amendment of the Constitution of India is **not** correct?
- (a) It is governed by Article 368(2) of the Constitution of India.
- (b) Joint sitting can be resorted to for passing a Bill amending the Constitution of India.
- (c) The State Legislatures cannot initiate any Bill or proposal for amendment of the Constitution of India.
- (d) The previous sanction of the President of India is not required for introducing any Bill in the Parliament for amendment of the Constitution of India.
92. Which one of the following methods is followed in electing the President of India?
- (a) Proportional Representation only
- (b) First-Past-the-Post System only
- (c) Proportional Representation and the Single Transferable Vote System
- (d) Proportional Representation and the First-Past-the-Post System
93. From among the following Mahajanapadas, identify the *gana/sangha* (oligarchy):
- (a) Magadha (b) Vajji
(c) Avanti (d) Kosala
94. The provision for separate electorate for Muslims was given in
- (a) Morley-Minto Reforms, 1909
- (b) Montagu-Chelmsford Reforms, 1919
- (c) Communal Award, 1932
- (d) Government of India Act, 1935
95. Which of the following was/were the founder member(s) of Hindustan Socialist Republican Army established in September, 1928?
1. Bhagat Singh
 2. Jatindranath
 3. Ajoy Ghosh
 4. Phanindranath Ghosh
- Select the correct answer using the code given below:
- (a) 1 only (b) 2 and 3 only
(c) 1, 2 and 3 only (d) 1, 2, 3 and 4
96. Who among the following did not belong to the group of 'No-Changers'?
- (a) M. A. Ansari
- (b) Vithalbhai Patel
- (c) Chakravarti Rajagopalachari
- (d) Kasturi Ranga Iyengar
97. The headquarters of Ghadar Movement/Party were at
- (a) San Francisco
- (b) Stanford University
- (c) Portland
- (d) Florida
98. Which one of the following pairs of Newspaper and Editor is **not** correctly matched?
- | <i>Newspaper</i> | <i>Editor</i> |
|--------------------|-----------------------|
| (a) Navjivan | Mahatma Gandhi |
| (b) Mahratta | Bal Gangadhar Tilak |
| (c) Bengalee | Surenranath Banerjea |
| (d) Voice of India | Gopal Krishna Gokhale |
99. Which one of the following was **not** included in the terms and conditions of Subsidiary Alliance System of Lord Wellesley?
- (a) The British would protect their ally.
- (b) The ally was free to enter into agreements with other rulers or engage in warfare.
- (c) In the territory of the ally, a British armed contingent would be stationed.
- (d) The ally would have to provide resources for the maintenance of the British armed contingent.
100. Which one of the following is an exhaustible but renewable natural resource?
- (a) Solar energy
- (b) Water in usable condition
- (c) Soil
- (d) Landscape in its natural condition
101. Recently, the term 'two-pillar solution/two-pillar package' often seen in the news, refers to
- (a) Global energy security in near future
- (b) International cyber crime reporting
- (c) Minimum global corporate tax
- (d) Prevention of international money laundering
102. Consider the following pairs of vaccine and category/type:
1. Covaxin : Inactivated pathogen-based vaccine
 2. Covishield : mRNA vaccine

3. Sputnik V : Viral vector-based vacciner
- Which of the pairs given above is/are correctly matched?
- (a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3
103. What is 'Unicorn Company' often mentioned in Indian news?
- (a) Any privately held startup company with a value of over \$ 1 billion
(b) Any public sector company to be merged with another public sector company
(c) Privatization of any loss-making State-owned company
(d) Any foreign multinational company doing business in India in collaboration with an Indian company
104. A global initiative popularly known as '30 × 30 target' is often seen in the news. Which one of the following statements best reflects this initiative?
- (a) At least 30% of the planet should be protected by 2030.
(b) At least 30% of the cultivated area should be brought under organic farming by 2030.
(c) At least 30% of the energy requirements should be met by renewable sources by 2030.
(d) At least 30% of the people below poverty line should be brought out of their poverty by 2030.
105. Which one of the following statements is correct regarding LOFAR (Low Frequency Array)?
- (a) It is the world's most powerful radio antenna.
(b) It is a space technology launched by NASA to discover exoplanets.
(c) It is an arrangement of satellites in space for the purpose of creating Satellite Navigation System.
(d) It is a wireless communication technology for 5G services.
106. In the recently formed grouping of countries generally known as 'Middle-East Quad', in addition to India which of the following are other members?
- (a) Egypt, Saudi Arabia and USA
(b) Egypt, Saudi Arabia and USA
(c) Egypt, UAE and UK
(d) Israel, Saudi Arabia and UK
107. The terms 'Pinaka and Smerch' mentioned in news recently refer to
- (a) Cruise missiles
(b) Nuclear-powered submarines
(c) Rocket launcher systems
(d) Weaponised drones
108. Which of the following statements is/are correct?
1. India had accorded recognition to Bangladesh even before the iuuuiauon of Bangladesh in 1971.
 2. In March 2021, both India and Bangladesh had decided to celebrate 6 December as Mair Diwas.
- Select the correct answer using the code given below:
- (a) 1 only (b) 2 only
(c) Both land 2 (d) Neither 1 nor 2
109. Recently India signed a contract for the manufacture of nearly 6 lakh AK-203 rifles with which one of the following countries?
- (a) Canada (b) Russia
(c) France (d) Israel
110. In December 2021, who among the following succeeded Angela Merkel as the Chancellor of Germany?
- (a) Olaf Scholz
(b) Annalena Baerbock
(c) Armin Laschet
(d) Jana Puglierin
111. Which of the following statements is/are correct?
1. Nilamoni Phukan Jr. is the 56th Jananpith Award winner
 2. Damodar Mauzo is the 57th Jananpith Award winner.
- Select the correct answer using the code given below:
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
112. Which one of the following statements about Anil Menon is correct?
- (a) He is an. engineer who revolutionised organic farming.
(b) He is a diplomat selected in a UN Pwict'-Keeping mission.
(c) Hu is a physician selected by NASA to be an astronaut.
(d) He is a star football player.

113. India's maiden human space mission will be launched in 2023. What is its name?
(a) Vayumitra (b) Vikram
(c) Chandrayaan-3 (d) Gaganyaan
114. Which one of the following teams won the Senior Women's Football Championship, 2021?
(a) Manipur (b) Railways
(c) West Bengal (d) Odisha
115. Which of the following about Khijadiya Bird Sanctuary is/are correct?
1. It is recently declared as a Ramsar Site (wetlands of international importance)
2. It is located in Uttar Pradesh
Select the correct answer using the code given below:
(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
116. Which one among the following countries has announced a plan that sets a goal of having fewer than 5% of its populace smoking by 2025?
(a) England (b) Germany
(c) New Zealand (d) Russia
117. Who among the following won the FIDE World Chess Championship, 2021?
(a) Nepomniachtchi (b) Magnus Carlsen
(c) Ding Liren (d) Anish Giri
118. With reference to Bhindawas Wildlife Sanctuary, Sultanpur National Park, T'hol Lake Wildlife Sanctuary and Wadhwana Wetland, which of the following statements, is/are correct?
1. All of them are Ramsar sites,
2. All of them are naturally formed wetlands
3. All of them are birding sites
Select the correct, answer using the code given below:
(a) 1 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2 and 3
119. To study which one of the following was a spacecraft launched that would be farthest from the Sun and would run exclusively on solar power?
(a) Jupiter's Trojan asteroids
(b) Saturn's rings and moons
(c) Mars' atmosphere
(d) Kuiper Belt and Oort Cloud
120. Recently, archaeological studies at which one among the following revealed that by 1200 BCE there was a flourishing agrarian civilization and the cultivation of rice was well-established at this place?
(a) Raichur Doab
(b) Krishna Delta
(c) Vicinity of Vamsadhara river
(d) Vicinity of Thamirabarani river

Answers

Q No	Answer Key	Topic Name	Chapter Name
1	(c)	Magnification	Ray Optics
2	(a)	Resistivity	Current & Electricity
3	(c)	Short Circuit	Current & Electricity
4	(d)	Domestic Power Supply	Current & Electricity
5	(c)	Displacement	Force and Laws of Motion
6	(c)	Gravitational Force	Gravitation
7	(c)	Combustion Reaction	Hydrocarbons
8	(b)	Identification of Redox Reactions	Redox Reactions
9	(c)	Organic Acids and their Sources	Acids, Bases and Salts
10	(b)	Mole Concept	Some Basic concepts of Chemistry
11	(b)	Saturated and Unsaturated Hydrocarbons	Hydrocarbons
12	(c)	Covalent Bond	General Organic Chemistry
13	(b)	Acidic and Basic Oxides	Periodic Classification of Elements
14	(b)	Genetically Modified Organisms	Biotechnology and its Applications
15	(c)	Epithelial Tissue	Tissues
16	(c)	Cell Membrane	Cell: The Unit of Life
17	(b)	Photosynthesis	Photosynthesis in Higher Plants
18	(b)	Vitamins	Diet for Healthy Living
19	(a)	Human Circulatory System	Body Fluids and Circulation
20	(a)	The Greenhouse Effect	Natural Resources
21	(c)	Gravity	Gravitation
22	(b)	Atmospheric Refraction	Ray Optics
23	(c)	Lens Formula	Ray Optics
24	(b)	Biomass	Microbes in Human Welfare
25	(a)	Digestion of Food	Digestion and Absorption
26	(c)	Viruses, Virusoids and Lichen	Biological Classification
27	(a)	Acid Rain	Environmental Chemistry
28	(b)	The Genetic Material is DNA	Molecular Basis of Inheritance
29	(b)	Kingdom Fungi	Biological Classification
30	(b)	Kingdom Fungi	Biological Classification
31	(a)	Million-plus City	Static GK
32	(c)	Köppen Climate Classification	World Climate and Climate Change
33	(b)	Bermuda Islands	Places and Locations
34	(d)	Forest Area	India State of Forest Report
35	(c)	Populations	Decadal Growth India
36	(b)	Manikaran Place	Static GK
37	(c)	John Maynard Keynes	Deficit Spending
38	(c)	Functions of Environment	Environment
39	(a)	Dadabhai Naoroji	Books

Q No	Answer Key	Topic Name	Chapter Name
40	(a)	Fixed capital	Fixed capital Requirements
41	(a)	Non Farming Activities	The Story of Village Palampur
42	(d)	NREGA	Static GK
43	(d)	Types of Emergencies	Emergencies
44	(c)	Money Bills	Bills
45	(d)	GST	GST Act
46	(d)	Various Committees	Committees Parliament
47	(b)	Socialism	Indian Economy
48	(c)	BRICS	Static GK
49	(a)	Federalism	Structure of Federalism
50	(d)	Sculptures	Art & Culture
51	(c)	Telegraphic Communication	Communication Systems
52	(a)	Basavanna Poet	Virashaiva Movement
53	(a)	Ruins at Hampi	Discovery
54	(a)	Krishnadevaraya	Vijayanagara Empire
55	(a)	Soils	Soil Taxonomy
56	(d)	Playas	Landforms and their Evolution
57	(b)	Composite Cones	Volcanoes
58	(d)	Isohalines	Representation of Data
59	(d)	FDI	Globalisation and India
60	(d)	Demand	Theory of Consumer Behaviour
61	(d)	Infant Mortality Ratio	Current Affairs
62	(a)	Monopolistic Competition	Non-Competitive Markets
63	(d)	Articles	Articles of Indian Constitution
64	(b)	Election Commission	Commissions
65	(c)	Preamble	Indian Constitution
66	(c)	Fundamental Duties	Indian Constitution
67	(c)	Peasants and Their Land	Peasants, Zamindars and the State
68	(a)	Autobiography	Books and Authors
69	(b)	Movements	Modern History
70	(d)	Sessions	Sessions of INC
71	(a)	Railway Zones	Indian Railways
72	(c)	Ten Degree Channel	Static GK
73	(b)	Waterfalls	Static GK
74	(b)	El Nino	Climate
75	(c)	Presidential Election	Elections
76	(a)	Articles	Articles of Indian Constitution
77	(c)	Indian Polity	Indian Constitution
78	(d)	Importance Cases	Important SC Judgements
79	(a)	Types of Writs	Writs
80	(c)	Serampore Mission	Civilising the "Native", Educating the Nation

Q No	Answer Key	Topic Name	Chapter Name
81	(c)	Peasants Revolt	Deccan Riots 1875
82	(d)	Saptanga Theory	Kautilya Arthashastra
83	(a)	Ashoka	Buddhism
84	(c)	Population Pyramids	Population Composition
85	(d)	Lakes and States	Static GK
86	(d)	Smog	Formulation of Smog
87	(d)	Mount Thuillier	Static GK
88	(a)	Albedos	Solar Radiation, Heat Balance
89	(d)	Audi Alteram Partem	Principles of Natural Justice
90	(b)	Lok Sabha	Resignation
91	(b)	Article 368	Power of Parliament
92	(c)	Election of President of India	Proportional Representation
93	(b)	Mahajanapadas	Ancient History
94	(a)	Minto-Morley Reforms	Modern History
95	(d)	Hindustan Socialist Republican Association	Modern History
96	(d)	No-Changers	Modern History
97	(a)	Ghadar Movement	Modern History
98	(d)	Newspapers	Static GK
99	(b)	Subsidiary Alliance	Modern History
100	(b)	Renewable Source	Sources of Energy
101	(c)	OECD:Two-pillar Solution	Current Affairs
102	(c)	Covid Vaccines	Current Affairs
103	(a)	Unicorn	Start-ups
104	(a)	30 × 30 Target	Current Affairs
105	(a)	Lofar	Science & Technology
106	(b)	Middle East Quad	Current Affairs
107	(c)	Rockets	Science & Technology
108	(b)	India-Bangladesh	Foreign Affairs
109	(b)	Arms	Defence
110	(a)	Elections	International Affairs
111	(c)	Jnanpith Award	Awards & Honours
112	(c)	Anil Menon	Current Affairs
113	(c)	Gaganyaan	Science & Technology
114	(a)	Football Championship	Sports
115	(a)	Khijadiya Bird Sanctuary	Ramsar Sites
116	(c)	New Zealand	Current Affairs
117	(b)	Chess	Sports
118	(b)	Ramsar Sites	Current Affairs
119	(a)	Spacecraft	Science & Technology
120	(d)	Archaeological Studies	Archaeology

Answers with Explanation

1. Option (c) is correct.

Magnification of lens is given by, $m = \frac{v}{u}$

$$\Rightarrow +2 = \frac{v}{-u}$$

$$\Rightarrow v = -2u$$

This shows the image is twice as far from the lens as compare to the object. It also means that the image is larger than the object. As u and v both carry same mathematical sign, the image and the object both lie on the same side of the lens, which means the image is virtual and erect in nature.

Trick: +ve magnification means image is virtual and erect while -ve magnification indicates image is real and inverted. If magnitude of magnification is greater than one it means image is larger, if it is less than one it means image is smaller than the object.

2. Option (a) is correct.

Glass is an insulator so its resistivity is highest and silver is one of the best known conductors so its resistivity is lowest among the three.

3. Option (c) is correct.

In short circuit, resistance of the circuit decreases drastically which increases the amount of current in the circuit. This heavy current produces very high heat and may damage the equipment/circuit. It may even cause fire.

4. Option (d) is correct.

In an electric supply, red or brown color is used for live wires, black or blue color is used for neutral wires and green color is used for earth wires.

5. Option (c) is correct.

The boy completes a round in 30 seconds, so in 3 minutes 30 seconds boy will cover 7 rounds. In remaining 15 seconds, he will cover half of the

round and will reach on other side of the circle (opposite to the starting point). Least distance in this case will be the diameter of the circle which is 200 m.

6. Option (c) is correct.

$$F_1 = \frac{Gm_1m_2}{r^2}$$

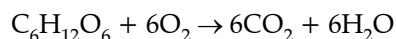
$$F_2 = \frac{G*2m_1*m_2}{(2r)^2}$$

(\because one of the mass & distance is doubled)

$$F_2 = \frac{G*m_1*m_2}{2r^2} = \frac{F_1}{2}$$

7. Option (c) is correct.

The balanced chemical reaction for the combustion of one mole of glucose is as follows-



8. Option (b) is correct.

Oxidation reaction is the reaction in which the oxidation state of an element changes. Here (b) does not represent oxidation reaction, it represent double displacement reaction.

9. Option (c) is correct.

Methanoic acid is an organic acid having the chemical formula of HCOOH. It is mainly present in ant sting.

10. Option (b) is correct.

$$\text{Number of moles} = \frac{\text{Given mass}}{\text{molar mass}}$$

$$\text{Given mass of He} = 104 \text{ gm}$$

$$\text{molar mass of He} = 4 \text{ gm}$$

$$\text{Number of moles} = \frac{104}{4} = 26 \text{ moles.}$$

11. Option (b) is correct.

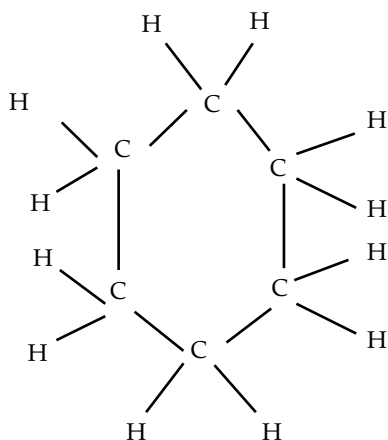
Unsaturated hydrocarbons are the hydrocarbons which contains multiple bond.

When unsaturated hydrocarbon burns, it produces yellow flame due to incomplete combustion.

12. Option (c) is correct.

Molecular formula of cyclohexane = C_6H_{12}

Structure formula of cyclohexane



The number of saturated (single) bond are = 18

The number of unsaturated (double & triple) bond are = 0

13. Option (b) is correct.

When non metal dissolved in acid, they produce acidic oxide because the solution turns blue litmus into red solution.

14. Option (b) is correct.

The combining of DNA molecules from two distinct species is known as recombinant DNA technology. A genetically modified organism (GMO) is a living organism whose DNA has been altered through genetic engineering. Humans have been using breeding strategies to modify creatures for thousands of years. The recombined DNA molecule by uniting desired traits from different species is placed into a host organism, resulting in new genetic combinations useful in science, medicine, agriculture, and industry. Transgenic animals are the animals that have had their DNA modified to possess and express a foreign gene which include transgenic rats, rabbits, pigs, lambs, cows, and fishes.

15. Option (c) is correct.

Epithelial tissues are the covering or protecting tissues of the animal body. Most organs and cavities in the body are covered with epithelium. It also serves as a barrier between

distinct body systems. Simple squamous epithelial cells create a delicate lining and are extremely thin and flat. Squamous epithelium lines the blood vessels, alveoli of lungs, and covers the oesophagus and the lining of the mouth. Squamous epithelium also makes up the skin that protects the body. To avoid wear and tear, epithelial cells of the skin are organised in layers. The epithelium is known as stratified squamous epithelium because it is structured in a pattern of layers.

16. Option (c) is correct.

Lipids and proteins make up the majority of the cell membrane. Phospholipids are the most common lipids, which are organised in a bilayer with the polar heads on the outside and the hydrophobic tails on the inside. The transport of molecules through the plasma membrane is one of the plasma membrane's most significant tasks. Some molecules on each side of the membrane can pass through it preferentially because of semi permeability. Passive transport refers to the ability of several molecules to travel across a membrane without requiring any energy. Simple diffusion over a concentration gradient can transport neutral solutes across the membrane. A type of diffusion, also known as osmosis, allows water, carbon dioxide, and oxygen to pass through the cell membrane. The cell membrane's flexibility allows the cell to take in food and other materials from its surroundings. Endocytosis is the term for such processes.

17. Option (b) is correct.

Plants are also termed as autotrophs that synthesize their own food in the form of carbohydrates, that is glucose, by absorbing photons emitted from sunlight when they utilize an inorganic carbon compound such as, carbon dioxide and water that serve as hydrogen donor. Photosynthesis occurs in chloroplasts, a type of plastid that contains chlorophyll and serve as absorbing pigment.

18. Option (b) is correct.

Vitamins are organic chemicals that humans need in sufficient amounts to stay healthy. However, our bodies are unable to synthesize them. As a result, we must consume natural sources of these nutrients, such as fruits and vegetables. Each vitamin has a distinct purpose, and its absence causes a specific deficiency illness. Vitamins are of two types based on their

solubility, fat soluble (Vitamin A, D, E, and K) and water soluble (Vitamin B and C). Vitamin D insufficiency that causes slow absorption of calcium and phosphorous is the most common cause of rickets. It can be caused by a vitamin D-deficient diet, insufficient sun exposure, or certain genetic disorders. The main symptom of this condition is a lack of calcification of the growth plates in the bones, which results in weak or soft bones in children, as seen by bowed legs, slowed growth, and bone deformities.

19. Option (a) is correct.

The pulmonary artery transports oxygen-depleted blood from the right ventricle of the heart to the lungs, where it gets oxygenated. The pulmonary veins return oxygenated blood from the lungs to the left atrium of the heart. Capillaries connect the vessels that take blood out from the heart (arteries) and the vessels that return blood to the heart (veins). They are the tiniest and most abundant blood vessels. The exchange of materials between blood and tissue cells is the major function of capillaries. They deliver blood, nutrients, and oxygen to cells throughout the body. The heart muscle, like all other tissues in the body, need oxygen-rich blood to function. The heart muscle is supplied with blood *via* coronary arteries. The coronary (crown like) arteries surround the heart on all sides. Small branches enter the heart muscle and carry blood to it.

20. Option (a) is correct.

The greenhouse effect is a natural mechanism that causes the surface of the Earth to warm. Some of the Sun's energy is reflected back to space, while the rest is absorbed and re-radiated by greenhouse gases as it enters the Earth's atmosphere. The greenhouse effect occurs when short wavelengths of visible light from the sun pass through a transparent media (glass) and are absorbed, while longer wavelengths of infrared re-radiation from heated things cannot. Exit the glass space in colder climates, this phenomenon was employed to create an enclosure where tropical plants could be kept warm during the winter. Greenhouses are the name for such enclosures. Greenhouses have also given their name to an occurrence in the atmosphere. Some gases hinder heat from leaving the Earth. The greenhouse effect is caused by an increase in

the amount of these gases in the atmosphere, which causes global average temperatures to rise. One of the greenhouse gases is carbon dioxide. A rise in carbon dioxide levels in the atmosphere would cause the atmosphere to retain more heat, resulting in global warming.

21. Option (c) is correct.

\therefore weight, $w \propto g$

\therefore Weight of an object will become nine times when the acceleration due to gravity becomes nine times that of the value of the Earth.

22. Option (b) is correct.

A star is situated very far from us, so it acts like a point object. When rays of light coming from the stars enter into our atmosphere, they undergoes continuous refraction due to changing atmospheric conditions (like wind, pollution etc.)

So apparent position of stars changes continuously and we see it as twinkling of stars.

23. Option (c) is correct.

Here, $f = 15$ cm,

As the image is real and of the same size as that of the object, $v = -u$

From lens formula,

$$\frac{1}{f} = \frac{1}{-v} - \frac{1}{u}$$

$$\Rightarrow \frac{1}{15} = \frac{1}{-u} - \frac{1}{u}$$

$$\Rightarrow \frac{1}{15} = -\frac{2}{u}$$

$$\Rightarrow u = -30 \text{ cm}$$

Shortcut: In case of convex lens, when object is at distance $2f$, the size of object and image are same.

24. Option (b) is correct.

Methane, hydrogen, and carbon dioxide are the three major gases found in biogas. It is mostly composed of methane and carbon dioxide, with minor amounts of hydrogen sulphide, moisture and siloxanes. Agricultural waste, food waste, animal dung, manure, and sewage can all be used to make biogas under anaerobic conditions (when biological matter breaks down in the absence of oxygen). Under

anaerobic conditions, certain bacteria create a lot of methane, as well as carbon dioxide and hydrogen. Methanogens are the bacteria responsible for producing the gaseous mixture. One such methanogen is *Methanobacterium*. They can be found in the cattle rumens where they digest cellulose and also found in sewage treatment sludge where they can be utilised to make biogas. It is a source of renewable energy because the production of organic material and its utilization is continuous.

25. Option (a) is correct.

The main component of gastric juice is hydrochloric acid, which is released by the parietal cells or oxyntic cells of the stomach mucosa. Gastric acid promotes digestion by regulating the pH of pepsin and gastric lipases and promoting pancreatic bicarbonate production. Hydrochloric acid aids protein digestion by activating pepsinogen (a zymogen), the precursor to pepsin. Hydrochloric acid aids in the breakdown, digestion, and absorption of nutrients by dissolving complicated big food molecules into smaller components.

26. Option (c) is correct.

Lichen is a mutualistic association between an alga and a fungus. The alga produces food by the process of photosynthesis which can be utilized by the fungus and the fungus provides protection to the algal partner from environmental stresses. Litmus is a water-soluble mixture of different dyes made from several lichen species, mainly *Roccella tinctoria*. Litmus is the earliest and most widely used indication of whether a material is an acid or a base, turning red in acidic solutions and blue in alkaline solutions. At pH 4.5, litmus turns red, and at pH 8.3, it turns blue. The various coloured components of litmus are produced by treating lichens with ammonia, potash, and lime in the presence of air.

27. Option (a) is correct.

Acid rain occurs when the pH of the rainwater falls below 5.6. The ways in which acid from the atmosphere is deposited on the earth's surface are referred to as acid rain. Acidic nitrogen and sulphur oxides can be swept into the atmosphere by the wind along with solid particles, eventually settling on the ground as dry deposition or in water, fog, and snow as

wet deposition. Sulphuric and nitric acids are formed when sulphur dioxide and nitrogen oxides combine with water, oxygen, and other molecules. After mixing with water and other materials, they fall to the earth. While some of the sulphur dioxide and nitrogen oxides that create acid rain come from natural sources like volcanoes, the most of it comes from the combustion of fossil fuels.

28. Option (b) is correct.

Viruses are obligate infective agents that contain genetic material enclosed in a protein coat. Viruses are constantly evolving due to genetic selection. Mutations (deletions or insertions) might occur due to radiations (UV rays, X-rays) that cause minor genetic changes or the changes in the form of nucleotide bases (enol to keto form) in the genetic material. When a mistake in the viral DNA is integrated, mutation occurs. Co-infecting viruses exchange genetic information, resulting in the creation of a new virus. The mutation rate of RNA viruses is substantially higher, with one mutation per viral genome copy. Mutations can be harmful, neutral, or even beneficial in some cases. Viruses with new antigenic determinants can result from mutations. Antigenic drift is the emergence of an antigenically new virus as a result of mutation. Viruses with antigenically altered antigens may be able to infect previously resistant or immune hosts.

29. Option (b) is correct.

Yeasts are unicellular eukaryotes that belong to the kingdom fungi. Baker's yeast is the common name for yeast strains that are often used in baking bread as a leavening agent which causes the bread to rise (expand and become lighter and softer) by converting fermentable carbohydrates which is sugar and starch in the dough to carbon dioxide and ethanol. Baker's yeast is a strain of *Saccharomyces cerevisiae*, which is the same species (but a different strain) as brewer's yeast, which is often employed in alcoholic fermentation.

30. Option (b) is correct.

Fungi are eukaryotic heterotrophic organisms that derive nutrition from different resources. With the exception of unicellular yeasts, they are filamentous. Hyphae are the long, slender thread-like structures that form a filamentous

network called mycelium in fungi. Some hyphae are coenocytic hyphae, which are continuous tubes filled with multinucleated cytoplasm, whereas others include septae or cross walls in their hyphae. In fungi, hyphae serve a variety of purposes. They contain the cytoplasm, often known as cell sap, as well as the nuclei, which contain genetic material. Hyphae take in nutrients from the environment and carry them throughout the thallus.

31. Option (a) is correct.

London was the first urban settlement to reach a population of one million.

- From 1810 to 1982 approximately more than 150 cities in the world had crossed the one million population mark.

32. Option (c) is correct.

Under the Köppen climate classification the greater part of Rajasthan falls under Hot Desert (Bwhw).

- Remaining portions of the Rajasthan falls under hot semi arid (BSh)
- The climate of the Rajasthan ranges from arid to semi-arid.

33. Option (b) is correct.

Bermuda, self-governing British overseas territory in the North Atlantic Ocean. It is an archipelago of seven main islands and about 170 additional (named) islets and rocks, situated about 650 miles (1,050 km) east of Cape Hatteras (North Carolina, U.S.)

34. Option (d) is correct.

In terms of forest cover as percentage of total geographical area, the top five States are Mizoram (84.53%), Arunachal Pradesh (79.33%), Meghalaya (76.00%), Manipur (74.34%) and Nagaland (73.90%).

35. Option (c) is correct.

During 1921-51, the population of India increased from 251 million to 361 million. This duration of 30 years has thus registered a growth of 47.3 per cent. Therefore, this period is called the period of steady growth rate.

36. Option (b) is correct.

Manikaran is famous for its hot springs and it is due to Geo-thermal energy. Manikaran is situated at an altitude of 1,829 meter.

37. Option (c) is correct.

Deficit spending often refers to intentional excess spending meant to stimulate the economy. British economist John Maynard

Keynes is the most well-known proponent of deficit spending as a form of economic stimulus.

38. Option (c) is correct.

All statements are true.

- Environment performs the following main function-
- Supplies resources
- Assimilates wastes
- Sustains life by providing genetic
- Bio-diversity and provides aesthetic services.

39. Option (a) is correct.

Dadabhai Naoroji through his book, "Poverty and Unbritish Rule in India" made the earliest estimation of poverty line.

40. Option (a) is correct.

Fixed capital requirements- In order to start the business, funds are required to purchase fixed assets like land and building, plant and machinery, and furniture and fixtures. These are called as the fixed capital requirements of the setup.

41. Option (a) is correct.

Non farming activities are those which do not involve farming as a source of income.

- Like construction, manufacturing, transporting, communication, trade and mining etc.
- These are as sufficient as farming and provide livelihood to a large population in rural parts of the country. Unlike farming, non-farm activities require little land.

42. Option (d) is correct.

National Rural Employment Guarantee Act 2005 which was later renamed as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is an act to provide for the enhancement of livelihood security of the households in rural areas of the country.

- By providing at minimum 100 days of guaranteed wage employment in every financial year to every household.
- They are adult members volunteer to do unskilled manual work and for matters connected therewith.
- This scheme covers in all rural districts of the country.

43. Option (d) is correct.

Only three types of emergencies are mentioned in Indian constitution.

1. National Emergency:- Article 352.

2. State Emergency :- Article 356.

3. Financial Emergency:- Article 360

In the Indian constitution, no health emergency is mentioned.

44. Option (c) is correct.

A bill shall said to be a Money Bill if it contains only provisions relating to imposition, abolition, remission, alteration or regulation of any tax.

- A Money Bill has provisions for the charge of the Consolidated Fund of India or the Contingency Fund of India.
- A Bill shall not be deemed to be a Money Bill by reason only that it provides for the imposition of fines or other pecuniary penalties.
- A Bill shall not be deemed to be a Money Bill by reason only that it provides for the demand or payment of fees for licences or fees for services rendered, or by reason that it provides for the imposition, abolition, remission, alteration or regulation of any tax by any local authority or body for local purposes.

45. Option (d) is correct.

All the given item are covered under GST except Petrol.

Items which are not included in the term goods under GST are:

- Petrol, high-speed diesel, aviation turbine fuel, crude oil.
- Electricity.
- Alcohol used for human consumption.
- Natural Gas.

46. Option (d) is correct.

Both statements are not correct.

- The members of the Estimates Committee are elected by the Lok Sabha every year from amongst its own members.
- All the thirty members are from Lok Sabha only.
- It is the largest committee of Parliament.
- The purpose of the committee is to scrutinise the functioning of government ministries and departments in terms of expenditure and utilisation of funds.
- The Railway Convention Committee is an ad hoc Committee constituted from time to time on a Resolution adopted by Lok Sabha and concurred by Rajya Sabha.

47. Option (b) is correct.

Radical socialism is not form of Indian socialism.

- Indian socialism is based on a political, social, and economic philosophy encompassing a range of economic and social systems characterised by social ownership of the means of production, as opposed to private ownership.

48. Option (c) is correct.

BRICS is an acronym for the powerful grouping of the world's leading emerging market economies, namely Brazil, Russia, India, China and South Africa.

- The BRICS aims to promote peace, security, development and cooperation.

49. Option (a) is correct.

Key features of federalism under the Indian Constitution:

- Division of powers: It is an essential feature of the federal constitution and division of power is done by the Constitution itself but in case of residuary power it is vested in union
- Supremacy of the constitution.
- Written constitution.
- Rigid constitution.
- Judiciary.
- Bi-Cameral Legislatue.
- Single citizenship.

50. Option (d) is correct.

Gajalakshmi, also spelt as Gajalaxmi, meaning Lakshmi with elephants.

In this aspect, the goddess is depicted seated on a lotus, flanked on both side by an elephant (gaja). She is shown as seated in Padmasana yogic posture, and has four arms.

Some sculptures at Sanchi were perhaps not directly inspired by Buddhist ideas. One among them is the shalabhanjika.

According to popular belief, this was a woman (shalabhanjika) whose touch caused trees to flower and bear fruit. It is likely that this was regarded as an auspicious symbol and integrated into the decoration of the stupa.

The shalabhanjika motif suggests that many people who turned to Buddhism enriched it with their own pre-Buddhist and even non-Buddhist beliefs, practices and ideas.

51. Option (c) is correct.

Telegraphic communication with India was first established in 1865 by overland telegraph lines from Europe to the top of the Persian Gulf and then by an undersea cable to Karachi.

52. Option (a) is correct.

Basavanna led a religious movement namely Virashaiva movement in Karnataka in 12th Century.

- He was a 12th-century Indian statesman, philosopher, poet, social reformer and Lingayat saint of the Shiva.
- He was associated with the Kalyani Chalukya/Kalachuri dynasty.

53. Option (a) is correct.

The ruins at Hampi were discovered in 1800 by Colonel Colin Mackenzie.

- He also made the first survey map of the Hampi.
- He was Scottish army officer in the East India Company.
- He later became the first Surveyor General of India.
- He was a collector of antiquities and an orientalist.

54. Option (a) is correct.

The most famous ruler of Vijayanagara was Krishnadevaraya and his work on statecraft composed in Telugu is known as the Amuktamalyada.

55. Option (a) is correct.

Entisol soil- Soil having weak developed soil with no horizon.

- Inceptisol- Soil having weakly or quick developed horizon.
- Histosol- Soil having very high quantity of organic matters.
- Oxisol- Soil are very old and highly weathered.

56. Option (d) is correct.

Playa is a flat-bottom depression found in interior desert basins and adjacent to coasts in arid and semiarid regions.

- The playas are created by local cataclysmic disruptions of drainage that are volcanism, landslides and meteorite impacts.

57. Option (b) is correct.

Composite cones are large volcanoes (many thousands of feet or meters tall) generally

composed of lava flows, pyroclastic deposits, and mudflow (lahar) deposits, as well as lava domes.

- Composite volcanoes are long active volcanoes and erupt periodically.

58. Option (d) is correct.

Isohalines are lines (or contours) that join points of equal salinity in an aquatic system. Isohaline position refers to the distance of a near-bottom isohaline from the mouth of a coastal waterway.

59. Option (d) is correct.

Broadly, foreign direct investment includes "mergers and acquisitions, building new facilities, reinvesting profits earned from overseas operations, and intra company loans. That why setting up of foreign educational institute in India considered as a FDI.

60. Option (d) is correct.

Prices of inputs into production of the good does not influence quantity demanded for a good. Demand is an economic principle referring to a consumer's desire to purchase goods and services and willingness to pay a price for a specific good or service. Complementary goods (products or services that add value to another) and substitute goods (similar products that a customer may use for the same purpose) and the price of the goods are the factors which influence the quantity demanded for a good by consumers.

61. Option (d) is correct.

Unfortunately, IMR and Maternal Mortality Rate (MMR) in India is very bad.

- Nepal, Sri Lanka and Bangladesh are better than India.
- Pakistan is the only country that India can be compared.

62. Option (a) is correct.

Characteristics of monopolistic competition:

- Slightly different products and services.
- Many companies.
- Imperfect consumer knowledge.
- Profits.
- Products and pricing.
- Barriers to entry and exit.
- Number of companies.

Hence, only option 1 and 2 are correct.

63. Option (d) is correct.

All provision is mentioned in article 19[1]. But in India the right to acquire, hold and dispose of property as fundamental right was eliminated by 44th Constitutional Amendment Act, 1978.

- The Fundamental right to property given under Article 31 was abolished and made a constitutional right under Article 300A.

64. Option (b) is correct.

Election commission administers elections to the Lok Sabha, Rajya Sabha, State Legislative Assemblies, State Legislative Councils and the offices of the President and Vice President of the country.

- Chief Election Commissioner of India can be removed from his office by the President on the basis of a resolution passed to that effect by both the houses of parliament with a two-thirds majority in both the Lok Sabha and the Rajya Sabha on the grounds of proved misbehaviour or incapacity.
- Other Election Commissioners can be removed by the President on the recommendation of the Chief Election Commissioner.
- Election Commissioners are appointed by President.

65. Option (c) is correct.

Both statements are true.

- Preamble called as the Blueprint of the India Constitution. It states that the India is sovereign, socialist, secular and democratic republic.
- The objectives stated by the Preamble are to right justice, liberty, equality to all citizens and promote fraternity to maintain unity and integrity of the nation.
- After the 42nd amendment, 3 words are inserted "Socialist, Secular, and Integrity"

66. Option (c) is correct.

Part IVA of the Indian Constitution deals with Fundamental Duties.

- Though the Swaran Singh Committee suggested the incorporation of eight Fundamental Duties in the Constitution, the 42nd Constitutional Amendment Act (1976) included ten Fundamental Duties.
- The 86th Constitutional Amendment Act, 2002, added one more duty which is to provide opportunities for education to his child or

ward between the age of six and fourteen years.

To value and preserve the rich heritage of the country's composite culture is one of the fundamental duties mentioned.

67. Option (c) is correct.

The term which Indo-Persian sources of the Mughal period most frequently used to denote a peasant was raiyat (plural, riaya) or muzarian.

- In addition, we also encounter the terms kisan or asami.
- Sources of the seventeenth century refer to two kinds of peasants—khud-kashta and pahikashtha.
- The former were residents of the village in which they held their lands. The latter were non-resident cultivators who belonged to some other village, but cultivated lands elsewhere on a contractual basis.

68. Option (a) is correct.

Binodini Dasi, also known as Notee Binodini, was an Indian Bengali actress and thespian.

She started acting at the age of 12 and ended by the time she was 23.

Amar Katha (The Story of My Life) is the autobiography of Binodini Dasi which was published in 1913.

69. Option (b) is correct.

Champan Satyagraha- 1916.

- Ahmedabad Mill Strike- 1917.
- Satyagraha Sabha – 1919 [Feb]
- Jallianwala Bagh massacre- April 1919.

70. Option (d) is correct.

The year 1916 is important in Indian history for:

- The Lucknow Session INC took place in 1916 and was presided by Ambica Charan Majumdar.
- The Lucknow Pact was an agreement between the Indian National Congress and the Muslim League regarding joint of both the parties held in Lucknow in December 1916.
- The Home Rule for India League was founded by Annie Besant in 1916.

71. Option (a) is correct.

- South Eastern Railway headquarters is located in Kolkata.

- South Central Railway headquarters is located in Secunderabad.
 - South Western Railway headquarters is located in Hubli.
 - South East Central Railway headquarters is located in Bilaspur.
72. **Option (c) is correct.**
The Ten Degree Channel is a channel that separates the Andaman Islands and Nicobar Islands from each other in the Bay of Bengal.
- Middle Andaman is separated from North Andaman Island by Austen Strait.
73. **Option (b) is correct.**
Barkan Falls is located in Karnataka on Seetha River.
- Dudhsagar Falls is located in Goa on Mandovi River.
 - Duduma Falls is located in Odisha on Machhkund River.
 - Kiliyur Falls is located in Tamil Nadu on Yercaud River.
74. **Option (b) is correct.**
Effects of El Nino
- Rise of sea surface temperatures
 - It weakens the trade winds.
 - In India and Australia drought conditions creates due to El Nino. This affects the crop productivity largely.
 - It may not bring drought but cause heavy rainfall. In both the cases, it causes heavy damage.
 - The Indian Ocean is warmer than the adjoining oceans and so, has relatively lower pressure. Hence, moisture-laden winds move from near the western Pacific to the Indian Ocean.
75. **Option (c) is correct.**
All statements are correct except statements 3. The presidential electoral college is made up of the following:
- Elected members of the Rajya Sabha.
 - Elected members of the Lok Sabha.
 - Elected members of each state's Legislative Assembly but not the Elected or Nominated member of Legislative Council.
 - Elected members of the legislative assemblies of the Union Territories of Delhi and Puducherry.
76. **Option (a) is correct.**
Article 78 stated duties of Prime Minister as respects the furnishing of information to the President.
- Article 74 states that provides for a Council of Ministers which shall aid the President in the exercise of the President's functions.
 - Article 75 stated the total number of cabinet ministers shall not more than 15% of the total number of members of the House of the People.
 - Article 81 states the composition of the Lok Sabha.
77. **Option (c) is correct.**
According to the Constitution of India, the total number of ministers in the council of ministers must not exceed 15% of the total number of members of the Lok Sabha.
- To be appointed as Attorney General of India, a person must be qualified to be a Supreme Court judge, they must either be a judge of a High Court for five years or an advocate in a High Court for 10 years or an eminent jurist in the President's opinion.
 - All executive action of the Government of India shall be taken on the behalf of President.
 - President or his subordinate officers is bound by the provisions of the constitution to do on the advice by the union cabinet.
78. **Option (d) is correct.**
The Supreme Court reversed the Delhi High Court's verdict in 2013 in Naz Foundation vs. Government of NCT of Delhi and others Case and held that the decision of decriminalizing homosexuality can only be done by the Parliament and not the Court. It also held that Section 377 criminalises certain acts and not any particular class of people.
79. **Option (a) is correct.**
There are 5 types of writs are mentioned in Indian constitution and implemented by Supreme court under article 32 and High court under article 226.
- Habeas Corpus mean- To have the Body
 - Mandamus mean- We command.
 - Certiorari- To be certified.
 - Prohibition- To be prohibited.
 - Quo- warrant- What is your authority?
80. **Option (c) is correct.**
The Serampore Mission was the name given to three pioneering English missionaries, namely Joshua Marshman, William Carey and William Ward.
- Serampore Mission (1800-1845) was India's first Christian missionary organisation. William

Carey and his two associates established this mission on 10 January 1800.

81. Option (c) is correct.

In the year 1875 peasants of Maharashtra initiated the revolt against increasing agrarian distress. They started the revolt due to the high rate of interest made on their land and agricultural crops by moneylenders. They socially boycotted the moneylenders. Later this movement rose in the other regions of the country.

Deccan Riots 1875 India:

The uprising began at Supa village in the district of Poona.

In 1875, farmers attacked a market place where many moneylenders lived. They burnt account books and looted grain shops. They also torched the houses of sahumars (people who were both traders and moneylenders).

The farmers were led by the village headmen.

82. Option (d) is correct.

The elements of Saptanga theory of Kautilya was

- Swamin—the King
- Amatya—the Minister
- Janapada—the Land, and the People
- Durga—the Fortress
- Kosha—the Treasury
- Danda—the Army
- Mitra—the Allies.

83. Option (a) is correct.

The Lumbini Pillar Edict is known as the Rummindei Pillar Inscription. The Lumbini Pillar Edict recorded that Ashoka traveled to the birthplace of Buddha sometime after the twentieth year of his reign and made offerings personally. Statement 1 is correct.

- Rock Edict I. Prohibits animal slaughter. Bans festive gatherings and killings of animals.
- In the Bairat minor rock edict, Ashoka declared his faith in Buddha, Dhamma and Sangha and called Buddha the Bhagavat. Hence, 2nd statement is wrong.

84. Option (c) is correct.

Both statements are correct.

- A population pyramid is a scale consist of two variables first is age and second is sex.
- They are used by demographers, who study population.

- A population pyramid is a graph that shows the distribution of ages across a population divided down the center between male and female members of the population.

85. Option (d) is correct.

Kaliveli Lake is located in Tamil Nadu. It is a coastal and lagoon lake.

- Khajjiar Lake is located in Himachal Pradesh near Dalhousie hill station.
- Khecheopalri Lake is located in Sikkim.
- Vembanad Lake is located in Kerala. It is the longest lake in India, as well as the largest lake in the state of Kerala.

Hence option D is correct.

86. Option (c) is correct.

Smog is often caused by heavy traffic, high temperatures, sunshine, and calm winds. These are a few of the factors behind an increasing level of air pollution in the atmosphere.

- Smog during winter (December-February) are mainly caused by limited dilution of air pollution, under unfavourable meteorological conditions: little wind (from continental directions) and a temperature inversion.

87. Option (d) is correct.

Mount Thuillier is a mountain on Great Nicobar Island, located in the Indian Ocean and bordering on the Andaman Sea.

- This mountain is composed of parallel ridges of folded sandstone.

88. Option (a) is correct.

Snow and ice have high albedos; a dark rock would have a lower albedo.

- The higher the albedo, the more the surface reflects light. Snow and ice have high albedos; a dark rock would have a lower albedo.
- Albedo is a non-dimensional, unitless quantity that indicates how well a surface reflects solar energy.

89. Option (d) is correct.

Audi Alteram Partem' is the principle of natural justice where every person gets a chance of being heard.

90. Option (b) is correct.

All statements are correct except 2.

- Speaker of Lok sabha give his resignation to deputy speaker or vice-versa.
- When speaker seat is vacant then deputy speaker act as a speaker of lok sabha.

- His resolution only regulate in lok sabha.
91. **Option (b) is correct.**
Article 368 state that Power of Parliament to amend the Constitution and procedure therefor.
- The joint sitting can never arise in the case of a Money bill and Amendment Act bill.
 - Article 368 of Indian constitution require that constitution of India can be amended by both houses of parliament by special majority.
 - Amendment Bill only initiated in Parliament not in State legislature.
92. **Option (c) is correct.**
In India, there are two methods of elections which are territorial representation and system of proportional representation.
Proportional representation is further divided into single transferable vote system and list system.
Under this system, all sections of people get representation in proportion to their number i.e., even the smallest section of the population get its share of representation in the legislature.
The proportional representation by single transferable vote system is adopted for the election of President, Vice- President, and members to the Rajya Sabha.
93. **Option (b) is correct.**
Vajji
- Among the sixteen Mahajanapadas, two followed the gana sangha rule: Vajji and Mallakas.
 - Many smaller states and tribes near these great states also had the gana sangha form of government, such as the Koliyas, and the Shakyas, the small tribal state which Gautama Buddha was born to.
94. **Option (a) is correct.**
The Minto-Morley Reforms of 1909 called for separate Muslim electorates.
- Communal Award extended the separate electorate to depressed Classes and other minorities.
 - Government of India Act 1935 gave the provision for separate electorates for Anglo-Indians and Indian Christians.
 - The separate electorate was introduced in Indian Councils Act 1909 for Muslims and extended to Sikhs, Indian Christians, Anglo-Indians and Europeans by Government of India Act 1919.
95. **Option (d) is correct.**
Hindustan Socialist Republican Association (HSRA), previously known as the Hindustan Republican Army.
- Hindustan Republican Association (HRA), was an Indian revolutionary organisation founded by Ram Prasad Bismil, Bhagat Singh, Ashfaqulla Khan, Sachindra Nath Bakshi, Sachindranath Sanyal and Jogesh Chandra Chatterjee.
96. **Option (d) is correct.**
Leaders like Vallabhbhai Patel, Jawaharlal Nehru and Rajendra Prasad, who became known as the No Changers as opposed to the Swarajist Changers.
- The working principle of the Swaraj Party they are known as No Changers. They are Vallabhbhai Patel, Rajendra Prasad, Dr. M.A. Ansari, C. Rajagopalachari.
97. **Option (a) is correct.**
Headquarters of Ghadar Movement were situated at San Francisco.
- Baba Sohan Singh Bhakna was an Indian revolutionary, the founding president of the Ghadar Party.
 - Lala Hardyal was the co- founder of Ghadar party.
98. **Option (d) is correct.**
Navjivan newspaper started by Gandhi Ji.
Maharatta newspaper started by Bal Gangadhar Tilak.
Voice of India newspaper started by Dadabhai Naroji.
99. **Option (b) is correct.**
The subsidiary alliance in India was planned by Lord Wellesley, but this term was introduced by French Governor Dupleix.
Following were the conditions of the subsidiary alliance:
- The Indian state was prohibited to keep any external relations, unless approved by the British.
 - They were to give either money or some territory to the company for the maintenance of the British troops.
 - They were to turn out from their states all non-english europeans whether they were employed in the army.

- They had to keep a British official called 'resident' at the capital of their respective states who would oversee all the negotiations and talks with the other states.

100. Option (b) is correct.

Freshwater is a renewable source because it can be used over and over again, as it has a cycle. However, freshwater is also a limited resource, because less than 3% of the world's water is fresh. That's why water is renewable resource and exhaustible resource.

101. Option (c) is correct.

India and the majority of the members of OECD-G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS) have joined a new two-pillar plan to reform international taxation rules.

The two-pillar plan - inclusive framework tax deal on Base Erosion and Profit Shifting (BEPS)- seeks to reform international tax rules and ensure that multinational enterprises pay their fair share wherever they operate.

Pillar One: It will ensure a fairer distribution of profits and taxing rights among countries with respect to the largest MNEs, including digital companies.

Pillar Two: It seeks to put a minimum standard tax rate among countries through a global minimum corporate tax rate, currently proposed at 15%.

102. Option (c) is correct.

Covaxin:

It is an inactivated pathogen-based vaccine. It is developed with Whole-Virion Inactivated Vero Cell-derived technology.

Covishield:

It is a recombinant, replication-deficient chimpanzee adenovirus vector vaccine.

It has been modified to enable it to carry the COVID-19 spike protein into the cells of humans.

Sputnik V:

It is a viral vector vaccine designed to produce lasting immunity against COVID-19.

It is based on adenovirus DNA.

Adenovirus is used as a carrier to deliver the coronavirus gene to cells and synthesize the SARS-CoV-2 virus's envelope proteins, introducing the immune system to a potential enemy.

103. Option (a) is correct.

A unicorn is a privately held startup company valued at over US\$1 billion. The term was first popularised in 2013 by venture capitalist Aileen Lee, choosing the mythical animal to represent the statistical rarity of such successful ventures.

104. Option (a) is correct.

It is a global initiative for governments to designate 30% of Earth's land and ocean area as protected areas by 2030.

The target was proposed in a 2019 article in Science Advances "A Global Deal for Nature: Guiding principles, milestones, and targets".

It highlights the need for expanded nature conservation efforts to mitigate climate change.

It was launched by the High Ambition Coalition in 2020, more than 50 nations had agreed to the initiative by January 2021.

105. Option (a) is correct.

The LOFAR or the Low Frequency Array is a large network of radio telescopes located primarily in the Netherlands, completed in the year 2012. LOFAR has been developed by the Netherlands Institute for Radio Astronomy, the ASTRON Radio Observatory of the Organization for Scientific Research and their international partners.

106. Option (b) is correct.

The Middle East Quad comprises Israel, USA, UAE, and India. It was formed after the meeting of the Foreign Ministers of India, US, Israel, and UAE. None of the options given in the question matches the answer.

Kindly, change option B (Egypt, Saudi Arabia and USA) with this (Israel, USA, UAE).

107. Option (c) is correct.

Smerch, procured from Russia, is the longest-range conventional rocket system in the

Army's inventory with a maximum range of 90 km.

Pinaka, indigenously designed and developed by the Defence Research and Development Organization, has a range of 38 km.

108. Option (b) is correct.

After independence in December 1971, India was one of the first countries to recognize Bangladesh as a separate and independent nation and established diplomatic relations with the country.

During the visit of PM Narendra Modi to Bangladesh in March 2021 that it was decided to commemorate 06 December as Maitri Divas.

109. Option (b) is correct.

India and Russia signed the agreements for the procurement of 6,01,427 7.63×39mm assault rifles AK-203 through Indo-Russia Rifles Pvt Ltd, under the military-technical cooperation arrangement for 2021-31.

110. Option (a) is correct.

Social Democrat Olaf Scholz has been elected by the Bundestag as the new chancellor of Germany, replacing Angela Merkel, and will head a coalition government with the Green Party and the neoliberal Free Democrats.

111. Option (c) is correct.

Assamese poet Nilmani Phookan and Konkani writer Damodar Mauzo has been conferred the 56th and 57th Jnanpith Award respectively.

112. Option (c) is correct.

Anil Menon is an American lieutenant colonel in the United States Air Force, emergency medicine physician, and NASA astronaut candidate. Menon was a Flight surgeon at NASA and Medical director at Space X before being selected as a candidate for an Astronaut at NASA.

113. Option (c) is correct.

In 2023, India will launch its maiden human space mission "Gaganyaan".

India will become the fourth nation in the world to launch a Human Spaceflight Mission after USA, Russia and China.

114. Option (a) is correct.

Manipur successfully defended their Senior Women's National Football Championship crown after a dramatic penalty shootout win over Railways in the final at the EMS Stadium in Kozhikode, Kerala.

115. Option (a) is correct.

The Khijadiya Bird Sanctuary near Jamnagar in Gujarat and Bakhira Wildlife Sanctuary in Uttar Pradesh have been listed as Wetlands of International Importance by the Ramsar Convention.

116. Option (c) is correct.

The correct answer is New Zealand. New Zealand is determined to achieve a national goal of reducing its national smoking rate to 5% by 2025, with the aim of eventually eliminating it altogether. At the moment, 13% of New Zealand's adults smoke, with the rate much higher among the indigenous Maori population.

117. Option (b) is correct.

Magnus Carlsen of Norway defended his title and won the FIDE World Championship 2021 in Dubai.

118. Option (b) is correct.

Bhindawas Wildlife Sanctuary is located in the Jhajjar district of Haryana. It was designated as Ramsar Site in May 2021.

Bhindawas Wildlife Sanctuary is a human-made freshwater wetland and is the largest wetland in Haryana State.

Sultanpur National Park is a bird paradise for bird watchers.

It is famous for its migratory as well as resident birds.

Migratory birds start arriving in the park in September.

A total of around 250 bird species have been reported in the park. It was designated as Ramsar Site in May 2021.

Thol Lake Wildlife Sanctuary was declared as a wildlife sanctuary to protect the birdlife found there. It was designated as Ramsar Site in April 2021.

Wadhvana Wetland reservoir was created in 1910 by the former Baroda State. It was designated as Ramsar Site in April 2021.

119. Option (a) is correct.

Lucy is NASA's newly launched spacecraft, the US space agency's first-ever mission to explore distant asteroids and seek out the origin of our solar system.

Lucy is the first space mission to study Jupiter's Trojan asteroids and would run exclusively on solar power.

120. Option (d) is correct.

A carbon dating analysis of rice with soil, found in a burial urn at Sivakalai in Thoothukudi district of Tamil Nadu was conducted by the Miami-based Beta Analytic Testing Laboratory. The finding has established that the Porunai river (Thamirabarani) civilization dates back to 3,200 years.