

Time : 1 hr 40 mins

Total Marks : 400

Important Instructions :

1. This Test contains 100 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.
3. All items carry equal marks.
4. Before you proceed to mark in the Answer Sheet the response to 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 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. What is the mass of a material, whose specific heat capacity is $400 \text{ J/(kg}^\circ\text{C)}$ for a rise in temperature from 15°C to 25°C , when heat received is 20 kJ ?
 - (a) 0.1 kg
 - (b) 1 kg
 - (c) 10 kg
 - (d) 5 kg
2. The specific latent heat of vaporization of a substance is the quantity of heat needed to change unit mass from
 - (a) liquid to vapour with a change of temperature.
 - (b) liquid to vapour without a change of temperature.
 - (c) vapour to liquid without a change of temperature.
 - (d) vapour to liquid with a change of temperature.
3. Evaporation from the surface of a given liquid takes place more rapidly when
 - (a) the temperature is high and the surface area of the liquid is large.
 - (b) the temperature is low and the surface area of the liquid is large.
 - (c) the temperature is low and the surface area of the liquid is small.
 - (d) the temperature is high and the surface area of the liquid is small.
4. Which of the following statements correctly explains/explain the existence of a positive force between two electric charges?
 1. Both the charges are positive.
 2. Both the charges are negative.
 3. Both the charges are oppositely charged.Select the correct answer using the code given below.
 - (a) 1 only
 - (b) 2 only
 - (c) 1 and 2 only
 - (d) 1, 2 and 3
5. An electric wire of resistance 50 ohm is cut into five equal wires. These wires are then connected in parallel. What is the equivalent resistance of this combination?
 - (a) 2 ohm
 - (b) 10 ohm
 - (c) 0.5 ohm
 - (d) 5 ohm
6. The electric field lines form an isolated positively charged conducting sphere are
 - (a) tangential to the conducting surface.
 - (b) at right angles to the conducting surface and towards the centre of the sphere.
 - (c) at any angle to the conducting surface.
 - (d) at right angles to the conducting surface and outwards from the centre of the sphere.
7. Which one of the following is **not** a solution?
 - (a) Alloy
 - (b) Milk
 - (c) Air
 - (d) Sugar
8. Refining of petroleum is carried out using which one of the following techniques?
 - (a) Evaporation
 - (b) Fractional distillation
 - (c) Separating funnel
 - (d) Sublimation
9. Which one of the following is a chemical change?
 - (a) Dissolving sugar in water
 - (b) Melting of ice

- (c) Crystallization
(d) Milk turning sour
10. Which one of the following is the correct molecular formula of ammonium carbonate if the valency of ammonium ion is (+1) and carbonate anion is (-2)?
(a) $(\text{NH}_4)_2\text{CO}_3$
(b) $\text{NH}_4(\text{CO}_3)_2$
(c) $(\text{NH}_3)_2\text{CO}_2$
(d) NH_4CO_3
11. Which one of the following is a covalent compound?
(a) Calcium oxide
(b) Sodium nitride
(c) Silicon carbide
(d) Zinc sulphide
12. The mass number of argon is 40. Which one of the following statements is correct?
(a) The number of protons in argon is 22.
(b) The number of neutrons in argon is 18.
(c) The number of electrons in argon is 18.
(d) The sum of numbers of protons and electrons in argon is 40.
13. Which one of the following is the correct order of the valencies of elements Ne, Si, N and Mg?
(a) $\text{Ne} < \text{Mg} < \text{N} < \text{Si}$
(b) $\text{Si} < \text{N} < \text{Mg} < \text{Ne}$
(c) $\text{Ne} < \text{N} < \text{Si} < \text{Mg}$
(d) $\text{Mg} < \text{Ne} < \text{N} < \text{Si}$
14. The frequency of an alternating current is 3 Hz. It implies that
(a) there are 6 cycles/s
(b) there are 3 cycles/s
(c) there are 2 cycles/s
(d) there is only 1 cycle/s
15. Which one of the following correctly represents the SI unit of resistivity?
(a) Ω (b) Ω/m
(c) $\Omega \text{ cm}$ (d) $\Omega \text{ m}$
16. What is the current required to light a 60 W incandescent bulb in a domestic supply of 240 V?
(a) 0.5 A (b) 0.25 A
(c) 1.0 A (d) 5.0 A
17. The magnetic field produced by a current-carrying straight wire at a point outside the wire depends
(a) inversely on the distance from it
(b) directly on the distance from it
(c) inversely at short distances and directly at large distance from it
(d) directly on the distance (at short distances) and inversely on the distance (at long distances) from it
18. What is the dimension of gravitational constant?
(a) $[\text{ML}^3\text{T}^{-2}]$ (b) $[\text{M}^{-1}\text{L}^3\text{T}^{-2}]$
(c) $[\text{M}^2\text{L}^{-2}\text{T}^{-2}]$ (d) $[\text{M}^2\text{L}^{-1}\text{T}^{-2}]$
19. A ball is thrown vertically upward with a speed of 40 m/s. The time taken by the ball to reach the maximum height would be approximately
(a) 2 s (b) 3 s
(c) 4 s (d) 5 s
20. The time period of a 1 m long pendulum approximates to
(a) 6 s (b) 4 s
(c) 2 s (d) 1 s
21. Which of the following statements about living and non-living being is/are correct?
1. While living being can demonstrate growth and repair, non-living being cannot.
2. While living being demonstrates metabolic processes, non-living being does not.
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
22. Which one of the following plant plastids stores starch, oil and protein granules?
(a) Chloroplast
(b) Leucoplast
(c) Chromoplast
(d) Xanthoplast
23. Which one of the following statements about 'vacuoles' is **not** correct?
(a) In plants, there is a large central vacuole that may occupy 90% of total cell volume.
(b) In plants cells, vacuoles provide turgidity and rigidity.
(c) In *Amoeba*, vacuoles have role in nutrition.
(d) Vacuoles are absent in animal cells.
24. In aquatic plants, large air sacs give them buoyancy effects. These sacs are surrounded by which one of the following types of tissues?
(a) Parenchyma
(b) Collenchyma
(c) Sclerenchyma
(d) Complex tissue
25. Which one of the following belongs to 'Pisces'?
(a) Dogfish
(b) Jellyfish
(c) Silverfish
(d) Starfish
26. Which one of the following groups is called 'amphibians of plant kingdom'?
(a) Bryophytes
(b) Thalophytes
(c) Pteridophytes
(d) Gymnosperms
27. Which one of the following is caused by a bacterial pathogen?
(a) AIDS
(b) Dengue fever
(c) COVID-19
(d) Typhoid fever

28. The twinkling of a star is due to the atmospheric
 (a) diffraction of starlight
 (b) reflection of starlight
 (c) refraction of starlight
 (d) dispersion of starlight
29. A mass M is dragged by a pulley on a horizontal plane by a force anti-parallel to its displacement. The work done in pulling the mass M is
 (a) zero (b) positive
 (c) infinite (d) negative
30. A 5 N force is defined when a mass of 10 kg is accelerated with
 (a) 5.0 cm/s^2 (b) 0.5 m/s^2
 (c) 0.5 cm/s^2 (d) 5.0 m/s^2
31. A boy of mass 52 kg jumps with a horizontal velocity of 2m/s onto a stationary cart of mass 3 kg. The cart is fixed with frictionless wheels. Which one of the following would be the speed of the cart?
 (a) 2.15 m/s (b) 1.89 m/s
 (c) 1.51 m/s (d) 2.51 m/s
32. The energy possessed by a body due to its change in position of shape is called
 (a) thermal energy
 (b) potential energy
 (c) kinetic energy
 (d) electric energy
33. A sound wave has a frequency of 1 kHz and wavelength 50 cm. How long will it take to travel 1 km?
 (a) 5 s (b) 4 s
 (c) 3 s (d) 2 s
34. For an element with atomic number 35, which one of the following will be the correct number of electrons in its valence shell based on Bohr's model of an atom?
 (a) 1 (b) 3
 (c) 5 (d) 7
35. Which one of the following is **not** an example of a redox reaction?
 (a) $\text{AlCl}_3 + 3\text{H}_2\text{O} \rightarrow \text{Al}(\text{OH})_3 + 3\text{HCl}$
 (b) $2\text{NaH} \rightarrow 2\text{Na} + \text{H}_2$
 (c) $4\text{Fe} + 3\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3$
 (d) $\text{CuSO}_4 + \text{Zn} \rightarrow \text{Cu} + \text{ZnSO}_4$
36. Which one of the following allotropes of carbon is isomorphous with crystalline silicon?
 (a) Coke (b) Diamond
 (c) Graphite (d) Coal
37. Which one of the following is the colour of hydrogen gas?
 (a) Light yellow (b) Orange
 (c) Black (d) Colourless
38. Which one of the following is **not** a pigment
 (a) Zinc oxide (b) Chalk
 (c) White lead (d) Silica
39. Which one of the following statements about fertilizers is **not** correct?
 (a) Urea is phosphorus containing fertilizer.
 (b) Application of fertilizer to the soil increases fertility of the soil.
 (c) Urea can be prepared by action of ammonia and carbon dioxide under high pressure and at high temperature.
 (d) Urea contains more nitrogen than other fertilizers.
40. Which one of the following statements is **not** correct?
 (a) Most carbon compounds are good conductors of electricity.
 (b) Bonding in organic compounds is covalent.
 (c) Graphite is used as a lubricant.
 (d) Diamond is an allotrope of carbon.
41. Which one of the following reactions is an example of decomposition reactions?
 (a) $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g})$
 (b) $2\text{AgCl}(\text{s}) \xrightarrow{\text{sunlight}} 2\text{Ag}(\text{s}) + \text{Cl}_2(\text{g})$
 (c) $\text{CuO} + \text{H}_2 \xrightarrow{\text{Heat}} \text{Cu} + \text{H}_2\text{O}$
 (d) $\text{Fe}(\text{s}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu}(\text{s})$
42. Which one of the following is the mechanism of action of oral contraceptive pills?
 (a) They kill the egg.
 (b) They kill the sperm.
 (c) They kill the zygote.
 (d) They inhibit the release of egg.
43. Which of the following plants has unisexual flowers?
 (a) Papaya (b) *Hibiscus*
 (c) Mustard (d) Sunflower
44. A cell is unable to synthesize lipids. Which of its cell organelles might be defective?
 (a) Smooth endoplasmic reticulum
 (b) Golgi bodies
 (c) Lysosomes
 (d) Mitochondria
45. All objects experience a buoyancy when they are immersed in a fluid. Buoyancy is
 (a) a downward force
 (b) a downward pressure
 (c) an upward force
 (d) an upward pressure
46. According to Fleming's right-hand rule, if the forefinger indicated the direction of magnetic field and thumb shows the direction of motion of conductor, then the stretched middle finger will predict the direction of
 (a) force acting on the conductor
 (b) electric field

- (c) induced current
(d) current
47. Two resistors R_1 and R_2 arranged in parallel combination in an electrical closed circuit are made of the same material and of same thickness. If the length of R_2 is twice the length of R_1 , then the total resistance R satisfies
(a) $3R = 2R_1$ (b) $3R = 2R_2$
(c) $2R = 2R_1$ (d) $2R = 3R_2$
48. What is the magnification produced by a concave lens of focal length 10 cm, when an image is formed at a distance of 5 cm from the lens?
(a) 2.0 (b) 1.0
(c) 0.5 (d) 0.33
49. A wooden box of mass 2 kg and dimensions (30 cm \times 5 cm \times 10 cm) is placed on a table with sides 30 cm and 10 cm touching the tabletop. Which one of the following is the approximate pressure exerted on the table?
(a) 111.1 N/m² (b) 222.2 N/m²
(c) 333.3 N/m² (d) 666.6 N/m²
50. Why are the tyres of aircrafts made of conducting rubber?
1. So that the charge accumulated on the aircraft in flight, by rubbing the air, can easily be transferred to ground on landing.
2. So that the charge accumulated due to the operation of various electronic equipments in the aircraft in flight can easily be transferred to ground on landing.
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
51. *Arthashastra*, the classical work of Indian political thought, focuses primarily on
(a) economy
(b) culture
(c) statecraft
(d) monarchy
52. When did Charaka Samhita originate?
(a) 6th Century BCE
(b) 3rd to 2nd Century BCE
(c) 4th Century BCE
(d) 5th Century BCE
53. Early Buddhist sculptors did not show Buddha in human form. Through which of the following symbols was Buddha's presence shown by the early sculptors?
(a) Empty Seat and Stupa only
(b) Wheel and Tree only
(c) Wheel, Tree and Stupa only
(d) Empty Seat, Wheel, Tree and Stupa
54. The Parliament of India is primarily based on the model of
(a) German Parliament
(b) British Parliament
(c) American Congress
(d) French Parliament
55. Who among the following had the shortest span in office as the Prime Minister of India?
(a) Lal Bahadur Shastri
(b) Chaudhary Charan Singh
(c) Chandra Shekhar
(d) H.D. Deve Gowda
56. Which one of the following does **not** fall under the jurisdiction of the apex court of India?
(a) Original Jurisdiction
(b) Appellate Jurisdiction
(c) Collegiate Jurisdiction
(d) Advisory Jurisdiction
57. According to the Indian Meteorological Department, which of the following is/are the feature/features of cloudburst?
1. Heavy precipitation in short period of time in a limited geographical area
2. It occurs generally during monsoon period and triggers flash flood and landslides
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
58. In a group discussion on shape and size of the Earth, three students stated the following points:
1. Student 1: The shape of the Earth is basically an oblate spheroid.
2. Student 2: The polar diameter of the Earth is more than the equatorial diameter.
3. Student 3: Bulge along the equatorial region is due to revolution of the Earth.
Who among the above students is/are correct?
(a) Student 1 only
(b) Student 1 and Student 2 only
(c) Student 2 and Student 3 only
(d) Student 1, Student 2 and Student 3
59. While watching news, you hear about a place, of which you had never heard earlier. You want to know more about the place and you want to locate it on the map. Which of the following is/are required for you to be able to locate the place on the map?
(a) Only latitude of the place
(b) Only longitude of the place
(c) Both longitude and latitude of the place
(d) Latitude, longitude and altitude of the place
60. Which one of the following statements with respect to Global Positioning System (GPS) is **not** correct?
(a) It is based on network of satellites orbiting above the Earth.
(b) It is based on the system of triangulation.
(c) GPS receivers provide location in terms of latitude, longitude and altitude.

- (d) It provides information exclusively for military operations.
61. Which one of the following is **not** a Constitutional Commission of India?
 (a) The National Commission for Scheduled Castes
 (b) The National Commission for Scheduled Tribes
 (c) The National Commission for Backward Classes
 (d) The National Commission for Women
62. Which Chinese traveller in ancient India wrote the diary called 'Records of the Travels to Middle India'?
 (a) Wang Xuance (b) Xuanzang
 (c) Yijing (d) Li Yibiao
63. The election to the lower House of the Parliament of India, held in 2019, constituted the
 (a) 14th Lok Sabha
 (b) 15th Lok Sabha
 (c) 16th Lok Sabha
 (d) 17th Lok Sabha
64. Panchayati Raj Institutions are primarily the institutions of
 (a) Popular Government
 (b) Self-Government
 (c) Federal Government
 (d) Quasi-Government
65. Which of the following is/are the right/rights mentioned in the 'American Declaration of Independence'?
 1. Life
 2. Liberty
 3. Pursuit of Happiness
 4. Fraternity
 Select the correct answer using the code given below.
 (a) 1 only (b) 1 and 2 only
 (c) 1, 2 and 3 (d) 2, 3 and 4
66. Who among the following American Presidents described democracy as "Government of the People, for the People and by the People"?
 (a) Abraham Lincoln
 (b) Thomas Jefferson
 (c) George Washington
 (d) John F. Kennedy
67. Inhabitants are unaware of the speed of rotation of the planet Earth because
 1. the angular velocity is constant for each place on the Earth's surface
 2. the atmosphere rotates with the Earth
 3. there are no nearby objects, either stationary or moving at a rate different from that of the Earth
 Which of the above is/are the correct explanation(s)?
 (a) 1 only (b) 1 and 2 only
 (c) 2 and 3 only (d) 1, 2 and 3
68. While travelling to a hilly region, you notice a massive boulder, which was loosened by heavy rains and moved downhill. This has resulted due to which of the following processes?
 1. Mass wasting
 2. Erosion
 3. Weathering
 Select the correct answer using the code given below.
 (a) 1 only (b) 1 and 2 only
 (c) 2 and 3 only (d) 1, 2 and 3
69. Which of the following statements in respect of landslides are correct?
 1. These occur only on gentle slopes during rain.
 2. They generally occur in clay-rich soil.
 3. Earthquakes trigger landslides.
 Select the correct answer using the code given below.
 (a) 1 and 2 only (b) 1 and 3 only
 (c) 2 and 3 only (d) 1, 2 and 3
70. Consider the following features about a geographical phenomenon :
 1. Torrents of snow and ice roaring down a steep mountain side
 2. It is hazardous to skiers and mountaineers
 3. It involves a mix of falling, rolling, sliding and flowing of materials'
 Which of the following phenomena can be identified with the above features?
 (a) Slump and earthflow
 (b) Avalanche
 (c) Landslide
 (d) Rockslide
71. The real beginning of western education in India can be dated from
 (a) the Charter Act of 1813
 (b) the Charter Act of 1793
 (c) the Sarda Act of 1929
 (d) the Macaulay's Minute on Indian Education, 1835
72. The term 'Industrial Revolution' was first used by
 (a) J. A. Blanqui
 (b) T. S. Ashton
 (c) Arnold Toynbee
 (d) R. H. Tawney
73. The Khudai Khidmatgar (Servants of the God) was organized by
 (a) Mahatma Gandhi
 (b) Khan Abdul Ghaffar Khan
 (c) M. A. Jinnah
 (d) M. M. Malaviya

74. The Mahad Satyagraha of 1927 was organized by
 (a) B. R. Ambedkar (b) Mahatma Gandhi
 (c) S. C. Bose (d) Lokmanya Tilak
75. The Satyashodhak Samaj (Truth-Seeking Society) was set up by
 (a) Vinoba Bhave
 (b) Jyotiba Phule
 (c) B. R. Ambedkar
 (d) C. Rajagopalachari
76. The 13th Century text *Lekhapaddhati* gives us information on which one of the following topics?
 (a) Art of writing
 (b) Essay writing
 (c) Legal document
 (d) Epigraphic style
77. Nkrumah was one of the five leaders, who comprised the core of the Non-Aligned Movement (NAM). He was the leader of which country in Africa?
 (a) Nigeria (b) Kenya
 (c) Uganda (d) Ghana
78. The idea of Planning in Independent India was drawn from
 (a) the Bombay Plan
 (b) the demand made by peasants
 (c) the demand made by workers' unions
 (d) the Gandhian vision of India's future
79. Nisarga, Gati, Nivar, Tauktae and Yaas are names of
 (a) new fighter aircrafts
 (b) tourist places
 (c) weather stations
 (d) cyclones
80. Which one of the following States/UTs was connected with the Indian Railways network in the year 2021?
 (a) Mizoram (b) Ladakh
 (c) Manipur (d) Sikkim
81. The forests of Uttarakhand, Kullu Valley in Himachal Pradesh and Dzukou Valley in Nagaland and Manipur were in the news on account of which one of the following reasons?
 (a) Deforestation
 (b) Forest fire
 (c) Poaching of wild animals
 (d) Illegal mining
82. Which one of the following is correct in respect of total number of States and Union Territories in India?
 (a) 28 States and 8 Union Territories
 (b) 27 States and 9 Union Territories
 (c) 30 States and 6 Union Territories
 (d) 29 States and 7 Union Territories
83. Snow, sleet and hail are the forms of
 (a) precipitation (b) condensation
 (c) transpiration (d) evaporation
84. Which one of the following is likely to be the most prevalent form of weathering in hot-tropical desert areas?
 (a) Mechanical (b) Chemical
 (c) Biological (d) Leaching
85. Which one of the following cities was the first to attain the status of a 'megacity' ?
 (a) London (b) Paris
 (c) New York (d) Washington
86. In India, rigid and stable elevated lands, denuded rocks and series of scarps are the features of which of the following?
 (a) Northern mountains
 (b) Peninsular plateau
 (c) Northern plains
 (d) Coastal plains
87. A person had visited a region in India and found trees, such as Khair, Neem, Khejri and Palas. Which one of the following regions is she/he expected to have visited?
 (a) Malabar Coast
 (b) Garo Hills
 (c) Sunderban Delta
 (d) Desert Region
88. Consider the following statements
 1. Rocks do not remain in their original form for long and undergo transformation.
 2. Transformation of rocks is caused by weathering, erosion and metamorphic action.
 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
89. Weathering, mass wasting, erosion and transportation are indicators of which one of the following processes?
 (a) Denudation (b) Endogenetic process
 (c) Diastrophism (d) Mountain building
90. If you want to observe moraines, eskers and outwash plains, which one of the following Union Territories you may have to visit?
 (a) Andaman and Nicobar Islands
 (b) Lakshadweep
 (c) Puducherry
 (d) Ladakh
91. Legendary Kathak dancer Pandit Birju Maharaj died recently. He was the doyen of which one of the following Gharanas of Ka thak?
 (a) Jaipur (b) Raigarh
 (c) Lucknow (d) Banaras
92. In a first, India is to export BrahMos missile to
 (a) Bhutan (b) Philippines
 (c) Maldives (d) Nepal
93. Who among the following is the Head of the Committee appointed by the Supreme Court of

- India to enquire into the circumstances that led to the Prime Minister of India's convoy being stuck for several minutes on a flyover in Punjab recently?
- (a) Justice Indu Malhotra
(b) Justice Ashok Bhushan
(c) Justice Navin Sinha
(d) Justice Rohinton Fali Nariman
94. Who among the following retired from test cricket by bagging a wicket on the last ball of his career?
- (a) AB de Villiers
(b) Michael Hussey
(c) Quinton de Kock
(d) Ross Taylor
95. Who among the following is appointed as the tenth Chairman of the Indian Space Research Organization (ISRO) recently?
- (a) A.S. Kiran Kumar
(b) K. Sivan
(c) K. Radhakrishnan
(d) S. Somanath
96. According to the Forest Survey Report, 2021, area-wise which one of the following States has the largest forest cover in India?
- (a) Odisha
(b) Madhya Pradesh
(c) Arunachal Pradesh
(d) Chhattisgarh
97. Who among the following is the Chairperson of the Goods and Services Tax Council?
- (a) The Prime Minister of India
(b) The Union Finance Minister
(c) The Speaker of the Lok Sabha
(d) The President of India
98. The International Union for Conservation of Nature (IUCN) has recently categorized the Red Sanders (Red Sandalwood) into
- (a) deficient category
(b) endangered category
(c) near-threatened category
(d) critically endangered category
99. The Government of India has decided to observe 'Veer Baal Diwas' on
- (a) 6th October
(b) 26th November
(c) 26th December
(d) 6th December
100. On 14th January, 2022, which one of the following ministries has organized a global Surya Namaskar Demonstration programme?
- (a) The Ministry of Culture
(b) The Ministry of AYUSH
(c) The Ministry of Health and Family Welfare
(d) The Ministry of Tourism

Answers

Q No	Answer Key	Topic's Name	Chapter's Name
1	(d)	Specific Heat	Thermal Properties of Matter
2	(b)	Latent Heat	Thermal Properties of Matter
3	(a)	Evaporation	Thermal Properties of Matter
4	(c)	Coulomb's Law	Electrostatics
5	(a)	Resistance	Current Electricity
6	(d)	Electric Field Lines	Electrostatics
7	(d)	Classification of Solution	Some Basic Concept
8	(b)	Separation Technique	Is Matter Around Us Pure
9	(d)	Physical and Chemical Change	Matter in Our Surroundings
10	(a)	Molecular Formula	Some Basic Concept
11	(c)	Example of Covalent Compounds	Carbon and its Compounds
12	(a)	Calculation of Number of Neutron	Structure of Atom
13	(a)	Comparison of Valencies	Periodic Classification of Element
14	(b)	Properties of Ac	Alternating Current
15	(d)	Resistivity	Current Electricity
16	(b)	Electric Power	Current Electricity
17	(a)	Magnetic Field Due To A Current Carrying Wire	Magnetic Effect of Electric Current
18	(b)	Dimensions	Unit and Dimensions
19	(c)	Equations of Motion	Motion
20	(c)	Simple Pendulum	Oscillation
21	(c)	What Is 'Living'?	The Living World
22	(b)	Plastids	Cell:the Unit of Life
23	(d)	Vacuoles	Cell:the Unit of Life
24	(a)	Permanent Tissues	Anatomy of Flowering Plants
25	(a)	Phylum Chordata	Animal Kingdom
26	(a)	Bryophytes	Plant Kingdom
27	(d)	Common Infectious Disease	Common Epidemics, Their Causes and Prevention
28	(c)	Atmospheric Refraction	Ray Optics
29	(d)	Work	Work, Energy and Power
30	(b)	Work	Work, Energy and Power
31	(b)	Linear Momentum	Work, Energy and Power
32	(b)	Energy	Work, Energy and Power
33	(d)	Sound Wave	Waves
34	(d)	Bohr Model	Structure of Atom
35	(a)	Redox Reaction	Redox Reaction and Stoichiometric Calculation
36	(b)	Carbon Compounds	Different Forms of Carbon

Q No	Answer Key	Topic's Name	Chapter's Name
37	(d)	Physical Properties of Gas	Metal and Non Metal
38	(d)	Pigments	Some Important Chemical Compounds
39	(a)	Urea	Chemical Compound Formulas
40	(a)	General Properties of Carbon Compounds	Carbon and its Compounds
41	(b)	Example of Decomposition Reaction	Chemical Reaction and Equation
42	(d)	Population Stabilization and Birth Control	Reproductive Health
43	(a)	Outbreeding Devices	Sexual Reproduction in Flowering Plant
44	(a)	The Endoplasmic Reticulum	Cell:the Unit of Life
45	(c)	Buoyancy	Fluid Mechanics
46	(c)	Fleming's Right Hand Rule	Magnetic Effect of Electric Current
47	(a)	Equivalent Resistance	Current Electricity
48	(c)	Magnification	Ray Optics
49	(d)	Pressure	Work, Energy and Power
50	(a)	Electrostatic Shielding	Electrostatics
51	(c)	Arthashastra	Ancient History
52	(b)	Charak Samhita	Art & Culture
53	(d)	Buddha	Art & Culture
54	(b)	Parliament	Polity
55	(b)	Static GK	Prime Minister
56	(c)	Judiciary	Supreme Court
57	(c)	Cloud Burst	Weather Phenomenon
58	(a)	Earth	Geography
59	(c)	Latitude & Longitude	Geography
60	(d)	GPS	GPS
61	(d)	Constitutional Bodies	Constitutional Bodies
62	(a)	Chinese Travellers in India	Ancient History
63	(d)	General Elections 2019	Current Affairs
64	(b)	Panchayati Raj	Panchayati Raj System
65	(c)	Declaration of Independence	World History
66	(a)	Democracy	World History
67	(d)	Rotation of Earth	Geography
68	(d)	Geomorphic Processes	Geomorphic Processes
69	(c)	Landslides	Geography
70	(b)	Avalanche	Geography
71	(a)	Charter Act of 1813	Modern History
72	(c)	Industrial Revolution	World History
73	(b)	The Making of National Movement	Modern History

Q No	Answer Key	Topic's Name	Chapter's Name
74	(a)	Socio-Religious Reform Movements	Modern History
75	(b)	Jyotiba Phule	Modern History
76	(c)	A General Survey of Socio-Cultural Reform Movements	Art & Culture
77	(d)	Non-Alignment Movement	Modern History
78	(a)	Bombay Plan	Modern History
79	(d)	Cyclones	Current Affairs
80	(c)	Indian Railways Network	Current Affairs
81	(b)	Forests Fires	Current Affairs
82	(a)	States & Uts	Current Affairs
83	(a)	Water in The Atmosphere	Geography
84	(a)	Mechanical Weathering	Geography
85	(c)	Megacities	Static GK
86	(b)	Landforms	Geography
87	(d)	Landforms	Geography
88	(c)	Rocks	Geography
89	(a)	Denudation	Geography
90	(d)	Depositional Landforms	Geography
91	(c)	Famous Personalities	Current Affairs
92	(b)	Missiles	Current Affairs
93	(a)	Committee	Current Affairs
94	(d)	Famous Personalities	Current Affairs
95	(d)	Appointments	Current Affairs
96	(b)	Forest Survey	Current Affairs
97	(b)	GST	ECONOMICS
98	(b)	IUCN List	Current Affairs
99	(c)	Important Days	Current Affairs
100	(b)	Government Programmes	Current Affairs

Answers with Explanation

1. Option (d) is correct.

Explanation:

Formula used $q = ms\Delta T$

$$S = 400 \text{ J/kg}^\circ\text{C}$$

$$q = 20 \text{ kJ} = 20 \times 10^3 \text{ J}$$

$$\Delta T = 25^\circ\text{C} - 15^\circ\text{C} = 10^\circ\text{C}$$

By putting all the values

$$20 \times 10^3 \text{ J} = m \times \frac{400 \text{ J}}{\text{kg}^\circ\text{C}} \times 10^\circ\text{C}$$

$$m = \frac{20 \times 10^3 \text{ J}}{400 \frac{\text{J}}{\text{kg}^\circ\text{C}} \times 10^\circ\text{C}} = 5 \text{ kg}$$

2. Option (b) is correct.

Explanation:

The specific latent heat of vaporization of a substance is the quantity of heat needed to change unit mass from liquid to vapour without change of temperature.

3. Option (a) is correct.

Explanation:

Evaporation is the process in which the conversion of liquid into vapour takes place at all temperatures. It increases with increase in temperature. Similarly it is a surface phenomenon in which on increasing the surface area, rate of evaporation increases.

4. Option (c) is correct.

Explanation:

$$F_e = \frac{kq_1 q_2}{r^2}$$

When both charges are of same sign then only, force will be positive. When both charges are of opposite sign (one is positive and another one is negative), magnitude of force will be negative.

5. Option (a) is correct.

Explanation:

Resistance of wire, $R = 50 \Omega$

Since, $R \propto l$, on cutting resistance into 5 equal parts, resistance of each part will be 10Ω . Now all parts are connected in parallel.

$$\text{So, } R_{eq} = \frac{R'}{5} = \frac{10}{5} = 2 \Omega$$

6. Option (d) is correct.

Explanation:

Electric field lines always start from positive charge and end at negative charge. In electrostatics, field lines are always at right angle to the conducting surface because if they are at any other angle then horizontal component of field will make charges move. If charges are not static, condition of electrostatic breaches and it becomes electrostatics. Hence, option (d) is correct.

7. Option (d) is correct.

Explanation:

Alloy, milk and sugar are the mixture of two or more substance. So it is considered as solution while sugar is a compound formed by the combination of elements in a fixed ratio. It is formed by the combination of C, H and O atom in fixed ratio.

8. Option (b) is correct.

Explanation:

Crude petroleum contain mixture of liquids which have different boiling points. Due to the difference in the boiling point one liquid get separated from other liquid through temperature difference. Here fractional distillation is used to separate crude petroleum.

9. Option (d) is correct.

Explanation:

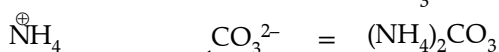
Chemical change is the change in which chemical properties of both reactant and product are different. Here milk turning sour is a chemical change as milk is lactose while sour milk is curd.

10. Option (a) is correct.

Explanation:

The formula of ammonium ion = NH_4^{\oplus}

The formula of carbonate ion = CO_3^{2-}

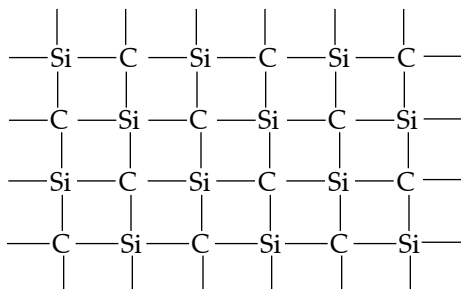


1 ← → 2

11. Option (c) is correct.

Explanation:

Covalent compound is a compound in which covalent bond is present between two atoms. Here silicon carbide is a covalent compound where silicon attaches with four other carbon atom.



12. Option (a) is correct.

Explanation:

Atomic number of Argon = 18

Mass number of Argon = 40

Number of proton = number of electron = 18

Number of neutron = mass number – atomic number

$$= 40 - 18 = 22$$

13. Option (a) is correct.

Explanation:

valency of Ne atom = 0

valency of Mg atom = 2 $\text{Ne} < \text{Mg} < \text{N} < \text{Si}$

valency of N atom = 3

valency of Si atom = 4

14. Option (b) is correct.

Explanation:

3 Hz means in one second there are 3 cycles of a.c.

$$(\because 1 \text{ Hz} = 1 \text{ cycle/s})$$

15. Option (d) is correct.

$$\rho = R \frac{A}{l} = \Omega \cdot \frac{\text{m}^2}{\text{m}} = \Omega \text{ m}$$

16. Option (b) is correct.

Explanation:

Electric power, $P = VI$

$$\Rightarrow I = \frac{60}{240} = 0.25 \text{ A}$$

17. Option (a) is correct.

Explanation:

Magnetic field at a point outside of a current carrying wire is given, $B = \frac{\mu_0 I}{2\pi r}$

Since $B \propto \frac{1}{r}$, magnetic field will decrease with increase in distance, so option (a) is correct.

18. Option (b) is correct.

Explanation:

$$\text{We know } F_g = \frac{Gm_1m_2}{r^2}$$

$$\begin{aligned}
 \text{Or } G &= \frac{F_g r^2}{m_1 m_2} \\
 &= \frac{[\text{M}^1 \text{L}^1 \text{T}^{-2}][\text{L}^2]}{[\text{M}^2]} \\
 &= [\text{M}^{-1} \text{L}^3 \text{T}^{-2}]
 \end{aligned}$$

19. Option (c) is correct.

Explanation:

Here, $u = 40 \text{ m/s}$, At maximum height velocity = $v = 0 \text{ m/s}$, $a = -10 \text{ m/s}^2$

Applying $v = u + at$

$$\Rightarrow 0 = 40 + (-10)t$$

$$\Rightarrow t = 4 \text{ s}$$

In 4 s ball will reach at the maximum height.

20. Option (c) is correct.

Explanation:

Time period of pendulum $T = 2\pi \sqrt{\frac{l}{g}}$

$$\Rightarrow T = 2\pi\sqrt{\frac{1}{10}}$$

$$\Rightarrow T \cong 2 \text{ seconds}$$

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

Explanation:

Living organisms are those that can grow, move, reproduce, perceive their surroundings or environment, breathe, and perform other cellular functions.

All living beings have cells which act as the basic building blocks and also the structural and functional unit of life. Gain in mass and an increase in the number of individuals is a feature that represents growth. Cell division is the process through which living organisms grow. Plants' cell division-based growth occurs continually throughout their lives, but in animals' growth is visible only up to a particular age. Cell division also occurs in some tissues to replace lost cells. If increase in mass is considered as the only criterion for growth, non-living objects, also demonstrate this type of growth by accumulating material on the surface. However, in living organisms' growth occurs from within and even new progenies are formed. Through the process of reproduction, they are capable of developing a new life that is unique to them. Non-living beings do not represent growth from within and do not exhibit reproduction, they also cannot repair the damage parts.

Different types of chemical compounds are found in all living beings that are constantly created and transformed into new biomolecules. All living creatures have millions of metabolic events going on at the same time. Metabolism is the sum of all chemical events that take place in the bodies of living organisms. Anabolism represents the synthesis of complex molecules for storage, while catabolism represents breaking down of complex molecules to simpler ones to obtain energy. Metabolism does not exist in non-living beings. In cell-free systems, metabolic events can be demonstrated outside of the body and the isolated metabolic processes *in vitro* are unquestionably life reactions.

22. **Option (b) is correct.**

Explanation:

Plastids can be of three types based on the pigment they store. These are chloroplasts that contain chlorophyll and carotenoid pigments that are essential for photosynthesis. Another one is chromoplasts contain fat soluble carotenoid pigments that impart different colors to the plant. Xanthoplast is one of the chromoplasts that contain yellow

pigment. The last type of plastid is leucoplasts which is found in different sizes, contain colorless plastids and store different nutrients. Leucoplasts can be of different types such as amyloplasts that store starch, elaioplasts that stores fat and oils, and aleuroplasts that store proteins.

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

Explanation:

Animal cells have vacuoles but they are smaller than plant cells. They are used for storage, excretion, osmoregulation, and digestion in animal cells. Plant cells have vacuoles that can take up to 90% of the cell's volume. Because the vacuole is the largest organelle in plant cells, when water enters it, it expands in size and shape, becoming rigid, and the plant as a whole becomes turgid and rigid. *Amoeba* possesses holozoic mode of nutrition. With the help of pseudopodia, the entire process is carried out through the body surface. The pseudopodia are pushed out to envelop and engulf the food, forming a food vacuole in the process called phagocytosis.

24. **Option (a) is correct.**

Explanation:

The most prevalent type of simple and living permanent tissue is parenchyma. It is made up of cells that are largely unspecialized and have thin cell walls. These tissues are frequently loosely structured and contains wide voids between cells. Generally, this tissue is used to store food. In aquatic plants, large air holes in the parenchyma of aquatic plants let them float that are referred to as aerenchyma.

25. **Option (a) is correct.**

Explanation:

Dogfish also known as *Scoliodon*. It is a cartilaginous shark belonging to the class chondrichthyes in the super class Pisces. Echinodermata is a phylum of marine invertebrates that includes starfish. Cnidaria is an invertebrate phylum that includes jellyfish. Silver fish are members of the Arthropoda phylum and class Insecta.

26. **Option (a) is correct.**

Explanation:

Bryophytes are often known as plant amphibians as these plants can live in soil but require water for sexual reproduction. They prefer moist, humid, and shady environments. The plant body is thallus-like, prostrate or upright, and has unicellular or multicellular rhizoids that connect to the substratum. They are devoid of genuine roots, stems, and leaves. The bryophyte's primary plant body is haploid. It is called a gametophyte because it generates gametes. Bryophytes have

multicellular sex organs. The antheridium is the male sex organ that produces biflagellate antherozoids. Archegonium, the female sex organ, is flask-shaped and produces a single egg. The antherozoids are discharged into the water, where they encounter archegonium. The zygote is formed when an antherozoid unites with the egg.

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

Explanation:

Typhoid also called enteric fever is a bacterial infection caused by *Salmonella typhi*. It can lead to high fever which is accompanied by diarrhea and vomiting. It is generally disseminated through the consumption of contaminated food and water.

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

Explanation:

Twinkling of star occurs due to atmospheric refraction. Composition of our atmosphere varies from place to place and with the height also. Stars are situated very far so they act as point object. When a ray of light coming from the star enters into our atmosphere it undergoes refraction continuously. Due to various phenomena like level of particle in atmosphere, pollution, wind, changes the refractive index and we get image at slightly different place which is seen as twinkling.

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

Explanation:

∴ Force and displacement are in opposite direction. So, $\theta = 180^\circ$

Work done is given by, $W = FS \cos \theta$

$$\begin{aligned} W &= FS \cos 180^\circ \\ &= FS \times -1 = -FS \end{aligned}$$

30. **Option (b) is correct.**

Explanation:

Here, $F = 5 \text{ N}$, $m = 10 \text{ kg}$, $a = ?$

$$a = \frac{F}{m} = \frac{5}{10} = 0.5 \text{ ms}^{-2}$$

31. **Option (b) is correct.**

Explanation:

As boy jumps on cart, so both cart and boy will move together.

Applying law of conservation of linear momentum,

$$\Rightarrow 52 \times 2 + 3 \times 0 = (52 + 3) \times v$$

$$\Rightarrow v = \frac{52 \times 2}{55} = 1.89 \text{ m/s}$$

32. **Option (b) is correct.**

Explanation:

Energy held by an object due to change in its shape or position is called potential energy.

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

Explanation:

Given, $f = 1 \text{ kHz}$ or 1000 Hz

$$d = 1 \text{ km}$$
 or 1000 m

$$\lambda = 50 \text{ cm}$$
 or 0.5 m

Speed of wave, $v = f \times \lambda$

$$= 1000 \times 0.5 = 500 \text{ ms}^{-1}$$

Time taken by sound wave

$$= \frac{\text{Distance}}{\text{speed}} = \frac{1000}{500} = 2 \text{ s}$$

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

Explanation:

Atomic number = 35

According to Bohr's atomic model the distribution of electron in a shell is represented by $= 2n^2$

Shell	No of electron
$n = 1$	$2 \times (1)^2 = 2$
$n = 2$	$2 \times (2)^2 = 8$
$n = 3$	$2 \times (3)^2 = 18$
$n = 4$	$2 \times (4)^2 = 32$

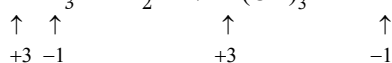
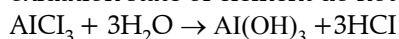
The distribution of 35 electron are as follows—
2, 8, 18, 17

35. **Option (a) is correct.**

Explanation:

Redox reactions are those reaction in which both reduction and oxidation takes place and it can be identified with the help of change in oxidation state.

Here (a) is not a redox reaction, because the oxidation state of element do not changes.



36. **Option (b) is correct.**

Diamond and crystalline silicon are isomorphous because they both have three dimensional tetrahedral structure.

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

Explanation:

Hydrogen is colourless gas.

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

Silica is not a pigment while Zinc oxide, Chalk and White lead are used as white pigments.

39. **Option (a) is correct.**

Explanation:

Urea has the chemical formula $\text{CO}(\text{NH}_2)_2$. It does not contain phosphorous. It is nitrogenous fertilizer.

40. **Option (a) is correct.**

Explanation:

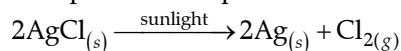
By sharing of electrons, carbon forms large number of covalent compounds and covalent compounds generally do not conduct electricity.

All Carbon compounds are not good conductor of electricity.

41. **Option (b) is correct.**

Explanation:

Decomposition reaction is the reaction in which more than one products are formed on breaking of one reactant. Here (b) is an example of decomposition reaction



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

Explanation:

Females employ oral administration of tiny dosages of progestogens or progestogen-estrogen combos as a means of contraception. They are commonly referred to as oral pills because they are taken as tablets. The pills must be taken every day for 21 days, particularly started within the first five days of the menstrual cycle. It must be continued in the same pattern after a 7-day break till the female desires to avoid conception. They block or delay sperm entry and also inhibits ovulation and implantation, as well as altering the quality of cervical mucus. Pills are highly effective, have less adverse effects, and are well accepted by women.

43. **Option (a) is correct.**

Explanation:

Papaya flowers are known as unisexual or dioecious because they only contain one of the plant's two reproductive components, never both. The flowers contain either the male reproductive part, stamens, or the female reproductive part, carpels.

44. **Option (a) is correct.**

Explanation:

The endoplasmic reticulum (ER) is a continuous membrane system in the cytoplasm of eukaryotic cells that produces a series of flattened sacs. Rough ER gets its name from the ribosomes adhering to its outer (cytoplasmic) surface, which give it a rough look. Rough ER is located next to the cell nucleus, and its membrane is connected to the nuclear envelope's outer membrane. Rough ER ribosomes specialize in the synthesis of proteins. Smooth ER, on the other hand, is not connected with ribosomes and has distinct roles. The smooth ER is involved in the synthesis of lipids such as cholesterol and phospholipids, which are needed to make new cellular membranes.

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

Explanation:

Buoyance is an upward force, responsible for floating of all the objects immersed in fluids.

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

Explanation:

Fleming's right hand rule is used to determine the direction of induced current.

According to this rule, if thumb represent force, middle finger represent magnetic field, then the direction of induced current is given by middle finger, provided all are mutually perpendicular.

47. **Option (a) is correct.**

Explanation:

\therefore Resistance of a conductor $\propto l$

$\therefore R_2 = 2R_1$

Both resistors are connected in parallel. So,

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$\Rightarrow \frac{1}{R} = \frac{1}{R_1} + \frac{1}{2R_1}$$

$$\Rightarrow \frac{1}{R} = \frac{2+1}{2R_1}$$

$$\Rightarrow 3R = 2R_1$$

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

Explanation:

Given, $f = -10$ cm, $v = -5$ cm, $u = ?$

Using lens formula, $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

$$\Rightarrow \frac{1}{-10} = \frac{1}{-5} - \frac{1}{u}$$

$$\Rightarrow \frac{1}{u} = \frac{1}{-5} + \frac{1}{10} = \frac{-1}{10}$$

$$\Rightarrow u = -10 \text{ cm}$$

Now, magnification $m = \frac{v}{u} = \frac{-5}{-10} = 0.5$

Alternative: $m = \frac{f-v}{f}$

$$= \frac{-10 - (-5)}{-10} = -\frac{5}{-10} = 0.5$$

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

Explanation:

Here, $A = 30 \times 10 \times 10^{-4} = 3 \times 10^{-2} \text{ m}^2$

$$F = mg = 2 \times 10 = 20 \text{ N}$$

Pressure, $P = \frac{F}{A} = \frac{20}{3 \times 10^{-2}} = 666.6 \text{ N m}^2$

50. **Option (a) is correct.**

Explanation:

Tires of aircrafts are made conducting, so that excess charge can be passed to the ground and safeguarding the aircraft and passengers.

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

Explanation:

Arthashastra was composed by Chanakya. It is a work on statecraft, political science, economic policy and military strategy.

The focus of attention in his text was the king and his political and administrative ideas.

The text focuses on the economic and social conditions of the Mauryan empire. Due focus was also given to the military strategy which should be adopted by the state.

52. **Option (b) is correct.**

Explanation:

The Charak Samhita, mainly deals with Ayurveda, is written by Charak.

The text is based on the Agnivesha Samhita which is a medical compilation by Agnivesa. Charaka revised it between 100 BCE and 200 CE, and renamed it Charaka Samhita.

Dates of composition of the Charaka Samhita are though uncertain. Some dates it to be between fourth century BC to the second century CE.

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

Explanation:

Early sculptors did not depict the Buddha in human form but instead showed his presence through symbols.

The empty seat – Meditation of the Buddha.

The Stupa – Mahaparinirvana

The wheel – Stood for the First Sermon of the Buddha delivered at Sarnath.

The tree – Symbolizes an event (Tree of awakening) in the life of the Buddha.

54. **Option (b) is correct.**

Explanation:

The parliamentary system of India is largely based on the British parliamentary system. However, it is not a complete replica of the British system.

55. **Option (b) is correct.**

Explanation:

- **Chaudhary Charan Singh** was the 5th Prime Minister of India. He had the shortest tenure. (28 July 1979 – 14 January 1980)

- **Lal Bahadur Shastri** was the second Prime Minister. (Tenure – 9 June 1964 – 11 January 1966)

- **Chandra Shekhar Singh** was the 8th Prime Minister. (Tenure – 10 November 1990 – 21 June 1991)

- **H. D. Deve Gowda** was the 11th Prime Minister. (Tenure – 1 June 1996 – 21 April 1997)

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

Explanation:

The Supreme Court of India has Original, Appellate and Advisory Jurisdiction

Original – When a matter is originally filed with the Supreme Court.

Appellate Jurisdiction refers to the Supreme Court's power to hear cases in which a lower court has already rendered a decision, but an

appeal has been made to the Supreme Court to overturn or revise it

Advisory Jurisdiction applies when a lower court or constitutional body seeks the advice of the Supreme Court on a legal issue.

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

Explanation:

Cloudbursts are the events of short-duration and intense rainfall over a small area.

It is a weather phenomenon characterized by unexpected rainfall exceeding 100mm/h over an area of about 20–30 square kilometres.

In the Indian Subcontinent, it usually occurs when a monsoon cloud drifts northwards from the Bay of Bengal to across the plains and then on to the Himalayas that sometimes brings 75 millimetres of rain per hour.

58. **Option (a) is correct.**

Explanation:

- Geodesy represents the figure of the Earth as an oblate spheroid because the Earth is flattened at the poles and bulges at the equator.

- The Earth's diameter at the equator and pole is 12,756 kilometers and 12,714 kilometers respectively. Therefore, the diameter of the Earth at the equator is about 42 kilometers larger than the pole-to-pole diameter.

- An equatorial bulge is due to the centrifugal force exerted by the rotation of earth on its axis. It is a difference between the equatorial and polar diameters of a planet

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

Explanation:

Latitude and longitude are geographic coordinates used to locate points on Earth's surface.

So, in order to find an exact location, we should enter the latitude and longitude GPS coordinates on Google Maps.

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

Explanation:

- The GPS is a satellite-based navigation system made up of a network of satellites placed in earth's orbit. It is owned by the United States government and operated by the United States Space Force.

- It is based on the system of Triangulation. It is a method for determining a position based on the distance from other points that have known locations.

- GPS receivers provide location in longitude, latitude and altitude and also provide the accurate time.

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

Explanation:

Any organization or body which is established by the Constitution of India is called constitutional body.

The following are the constitutional bodies in India:

- Election Commission
- Union Public Service Commission
- State Public Service Commission
- National Commission for Scheduled Castes
- National Commission for Scheduled Tribes
- National Commission for Backward Classes

The bodies or organizations which are established by acts of the Parliament are called as statutory bodies or non-constitutional bodies. These are:

- National Commission for Women (1992)
- National Commission for Minorities (1993)
- National Human Rights Commission (1993)
- National Commission for Protection of Child Rights (2007)

62. **Option (a) is correct.**

Explanation:

The book *Zhong Tianzhu Guo Xingji* (Travel Notes of Central India) was written by Wang Xuance.

Wang Xuance was a guard officer and diplomat of Tang Dynasty. This book contains a wealth of geographical information.

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

Explanation:

General elections in 2019 were held in seven phases from 11 April to 19 May.

It was held to elect the members of the 17th Lok Sabha.

64. **Option (b) is correct.**

Explanation:

Panchayati Raj is entrusted with rural development. In India, the panchayati raj signifies the system of rural local self-government.

The 73rd Amendment Act of 1992 gave a constitutional status to the panchayati raj institutions.

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

Explanation:

Life, Liberty and the pursuit of Happiness are the rights mentioned in United States Declaration of Independence.

This declaration was adopted by the Second Continental Congress meeting which was held in Philadelphia, Pennsylvania, on July 4, 1776.

66. **Option (a) is correct.**

Explanation:

Abraham Lincoln

- He was an American lawyer and the 16th President of the United States
- It was Abraham Lincoln who said that 'Democracy is a government of the people, by the people and for the people'.

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

Explanation:

The inhabitants don't feel the speed of rotation of Earth because of the following reasons:

- The orbital and spinning speeds of Earth remain the same so we do not feel any acceleration or deceleration.
- People are held close to the Earth's surface by gravity and the constant speed of rotation (Angular Velocity).
- Another reason for not feeling the speed is because Earth's atmosphere and oceans are spinning along with the Earth at the same constant speed.
- Therefore, All the objects whether moving or stationary are moving at a same rate of speed as that of Earth.
- **Example** – If we are in a car which is moving at a constant speed on a smooth surface, we will not feel much motion. But when we apply brakes, we feel the sudden motion.

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

Explanation:

Mass wasting – It is the downhill movement of soil and rocks due to gravity.

The wearing away of landscape by various agents like water, wind and ice is called as **erosion**.

Weathering – It is the action of elements of weather and climate over earth materials.

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

Explanation:

- Landslides are the mass movement of rock, debris or earth down a slope
- Clay minerals present between soil particle particles can cause a mutual repulsion force and friction particles that trigger the movement of particles at a small scale when soil becomes saturated with water resulting in soil movement (landslides).
- Earthquakes are also responsible for landslides.

70. **Option (b) is correct.**

Explanation:

- An avalanche is a rapid flow of snow, rock, ice, and soil down a slope, such as a hill or mountain.
- The movement can occur by sliding, falling, and rolling of pieces within the avalanche mass
- Avalanches pose a threat to anyone on snowy mountainsides, like mountaineers and skiers.

71. **Option (a) is correct.**

Explanation:

The following are the features of the Charter Act of 1813:

- It scrapped the trade monopoly of the company in India. The Indian trade was made open to all British merchants.
 - It declared the sovereignty of the British Crown over the company's territories in India.
 - It allowed for the spread of western education among the people of the British territories in India.
72. **Option (c) is correct.**
Explanation:
It was Arnold Toynbee (1852–83), the English economic historian, who first popularized the term Industrial Revolution. He used this term to describe Britain's economic development from 1760 to 1840.
73. **Option (b) is correct.**
Explanation:
Khudai Khidmatgar (Servants of the God)
- It was started by **Khan Abdul Gaffar Khan** who is also known as Badshah Khan and Frontier Gandhi.
 - He had organised a volunteer brigade 'Khudai Khidmatgars' (popularly known as the 'Red-Shirts'). It was a Pashtun movement dedicated to nonviolence and the fight for freedom.
74. **Option (a) is correct.**
Explanation:
- Mahad Satyagraha in March 1927 was started by Dr Bhimrao Ambedkar.
 - He started this movement to challenge the regressive customs of the upper caste.
 - He led a procession of around 2,500 'untouchables' through the town of Mahad to the Chawdar tank which was a public source of water tank. The untouchables were not allowed to draw water from this tank. Dr Ambedkar draw the water from the tank and drank it.
75. **Option (b) is correct.**
Explanation:
Jyotiba Phule was born in Satara, Maharashtra. He belonged to the mali (gardener) community and organised a movement against upper caste dominance and brahminical supremacy. He founded the Satyashodhak Samaj (Truth Seekers' Society) in 1873.
The main aims of the movement were
- social service
 - spread of education among women and lower caste people.
76. **Option (c) is correct.**
Explanation:
Lekhapaddhati (Models of Written Documents)
- Collection of Sanskrit documents written between the 8th and 15th centuries.
 - Written during the Chaulukya rule in Gujarat
 - It was a legal document containing rules for drafting various type of documents. These documents were related to land grants, treaties between the rulers and rule of administration.
77. **Option (d) is correct.**
Explanation:
Five Pioneering Leaders of the Non-Alignment Movement (NAM)
1. **President Kwame Nkrumah of Ghana**
 2. President Sukarno of Indonesia
 3. Prime Minister Jawaharlal Nehru of India
 4. President Tito, original name Josip Broz, of Yugoslavia
 5. President Gamal Abdel Nasser of Egypt
78. **Option (a) is correct.**
Explanation:
Bombay Plan
- A section of the big industrialists in 1944 sat together in 1944 and drafted a joint proposal for setting up a planned economy in the country.
 - It was called the **Bombay Plan**.
 - The Bombay Plan called for the government to invest majorly in industry and other areas of the economy.
 - After independence, the planning for development was the most obvious choice for the country.
 - Soon after India became independent, the Planning Commission came into being with Prime Minister as its Chairperson.
 - It became India's most powerful and central decision-making mechanism for determining the country's growth course and strategy.
79. **Option (d) is correct.**
Explanation:
- Cyclone Nisarga – State of Maharashtra in June 2020.
 - Cyclone Gati – Somalia, Yemen (2020)
 - Cyclone Nivar – Tamil Nadu, Andhra Pradesh (November 2020)
 - Cyclone Tauktae – Arabian Sea (affected many Indian cities and other countries too)
 - Cyclone Yaas – Odisha, West Bengal (May 2021)
80. **Option (c) is correct.**
Explanation:
The state of Manipur was connected with Indian Railways Network in 2021.

A passenger train, the Rajdhani Express, arrived at the Vaingachunpao railway station in Manipur for a trial run from Assam's Silchar railway station.

81. **Option (b) is correct.**

Explanation:

The forest fires occur frequently in the low and middle hills of the Himachal Pradesh in the summer season. A forest fire raged for several days near Kullu.

The 2021–22 wildfire resulted in extensive environmental damage in the ecologically sensitive region of the Dzukou Valley which is located in the states of Nagaland and Manipur. It destroyed 200 acres of old-growth forest.

82. **Option (a) is correct.**

Explanation:

- As of 2022, India has–
- States – 28
- Union Territories – 8
- Dadra and Nagar Haveli was merged with Daman and Diu on 26 January 2020 to form a new territory as “Dadra and Nagar Haveli and Daman and Diu”.

83. **Option (a) is correct.**

Explanation:

Precipitation:

It is the process by which water falls from the atmosphere back on Earth, either in liquid or frozen form.

Examples of precipitation – *Rain*, hail, sleet, and snow are all

Sleet – Sleet is a frozen precipitation that melts as it descends from the atmosphere and often refreezes before hitting the ground. In other words, it is a combination of a **snow and rain or ice pellets**.

Hail – Hails are the pellets of frozen rain falling down in form of showers from clouds

84. **Option (a) is correct.**

Explanation:

Mechanical weathering is dominant in areas of arid or hot desert. Its is also called physical weathering.

It is a process that causes rocks to disintegrate or crumble. It is, caused by rainwater, temperature extremes and biological processes. Biological processes, rainwater, temperature extremes, and other factors lead to the breaking down of rocks where they are located.

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

Explanation:

A megacity is a very large city with a population of more than 10 million people. New York City, in 1950, was the first city to

attain the status of a mega city.

86. **Option (b) is correct.**

Explanation:

Peninsular plateau

- It was formed due to the breaking and drifting of the Gondwana land and therefore is a part of the oldest landmass.
- The peninsular plateau is composed of metamorphic and igneous rocks with rising hills and wide valleys.

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

Explanation:

Species of tree found in Tropical Thorn Forests – Babool, ber, and wild date palm, khair, neem, khejri, palas,

These forests are found in the areas/regions, which receive rainfall less than 50 cm (example – deserts)

States where Tropical Thorn Forests are found – South west Punjab, Madhya Pradesh, Rajasthan, Gujarat, and Uttar Pradesh.

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

Explanation:

Rocks do not remain in their original form for longer duration and undergo transformation. Old rocks are transformed into new ones and this is termed as Rock Cycles.

Sedimentary, igneous, and metamorphic are the three main types of rocks.

Each of these rocks are formed or transformed by physical changes—such as cooling, eroding, compacting, melting, or deforming.

Metamorphic action changes pre-existing rocks into new forms because of increases in temperature, pressure, and chemically active fluids.

89. **Option (a) is correct.**

Explanation:

There is a general term called denudation under which all the exogenic geomorphic processes are covered. The word ‘denude’ means to uncover or to strip off.

Mass wasting/movements, weathering, erosion and transportation are included in denudation.

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

Explanation:

Moraines, eskers, outwas plains, and drumlins are the depositional landforms commonly found in glaciated areas.

Ladakh stretches from the Siachen Glacier in the Karakoram range (North) to the main Great Himalayas (South).

Because of various glaciers in Ladakh, are these features are found here.

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

Explanation:

- Brij Mohan Nath Misra was popularly known as Pandit Birju Maharaj.
- He was an internationally acclaimed Kathak dancer.
- He belonged to the Lucknow Gharana and was responsible for making Kathak popular in Northern India.
- He was recipient of the Padma Vibhushan.

92. **Option (b) is correct.**

Explanation:

In January 2022, Philippines became the first nation to buy BrahMos missile system from India. The deal is worth almost \$375 million. BrahMos missile is jointly developed by Defence Research and Development Organisation (DRDO) and Russia's NPO Mashinostroyeniya.

93. **Option (a) is correct.**

Explanation:

The Supreme Court had appointed a five-member committee under the chairmanship of former judge Indu Malhotra

The committee had to investigate Prime Minister Narendra Modi's security lapse that took place in Punjab where PM Modi's convoy was stuck on a flyover for 15–20 minutes.

The convoy was on its way to the National Martyrs Memorial in Hussainiwala, a few kilometres away from the Pakistan border.

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

Explanation:

Ross Taylor (New Zealand) completed his Test cricket journey with a wicket from his last ball. After a total of 112 Tests, 7684 runs, and 19 centuries, he finally bid adieu to his test career.

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

Explanation:

Rocket scientist S Somanath has been appointed as the new chairperson of the Indian Space Research Organisation.

He has become the 10th chairperson and has been appointed for a period of three years.

96. **Option (b) is correct.**

Explanation:

Forest Survey report 2021

- It was prepared by the Forest Survey of India (FSI).

- The total forest and tree cover of the country stand at 80.9 million hectares. It is 24.62% of the geographical area of the country.

- Area-wise **Madhya Pradesh** has the largest forest cover in the country. It is followed by Arunachal Pradesh, Chhattisgarh and Odisha

97. **Option (b) is correct.**

Explanation:

The 101st Amendment Act of 2016 introduced a new tax regime i.e., Goods and Services Tax – GST in the country

The amendment also had a provision of establishing the Goods and Services Tax Council or the GST Council.

Article 279–A – This article empowers the President to constitute a GST Council by an order.

The Union Finance Minister acts as the Chairperson of Goods and Services Tax Council

98. **Option (b) is correct.**

Explanation:

Red Sanders or Red Sandalwood whose scientific name is *Pterocarpus santalinus* has been put back into the endangered category in the International Union for Conservation of Nature's (IUCN) Red List.

It is an Indian endemic tree species and has a restricted geographical range in the Eastern Ghats. It was classified as 'near threatened' in 2018.

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

Explanation:

Every year on December 26 Veer Bal Diwas will be observed in the country.

It will be celebrated in the memory of Guru Gobind Singh's four sons (four Sahibzadas) who were executed by the Mughals.

100. **Option (b) is correct.**

Explanation:

The Ministry of AYUSH on 14 January 2022 organized a global Surya Namaskar demonstration programme for 75 lakh people globally.

It was organised on the day of Makar Sakranti in order to commemorate the journey of the Sun to the Northern Hemisphere.