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**UPSC Combined
Geo-Scientist
(Prelims)**

**Previous Year Paper
(General Studies)
Paper-I 2023**



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T.B.C. : SDGH-U-GKS

Test Booklet Series

Serial No.

1022205

TEST BOOKLET



PAPER—I

(General Studies)

Time Allowed : Two Hours

Maximum Marks : 100

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET *DOES NOT* HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. *DO NOT* write anything else on the Test Booklet.
4. 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.
5. You have to mark all your responses *ONLY* on the separate Answer Sheet provided. See directions in the Answer Sheet.
6. All items carry equal marks.
7. 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 sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator *only the Answer Sheet*. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **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.

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1. Deserts are generally located at

- (a) Equatorial region
- (b) Polar region
- (c) about 30° latitude
- (d) about 65° latitude

2. Which one of the following has the adaptation 'echolocation' to detect the prey?

- (a) Rattlesnake
- (b) Barn owl
- (c) Grasshopper
- (d) Bat

3. Which one of the following is the most important stage in the process of ecological succession?

- (a) Claim
- (b) Acceptance by community members
- (c) Reaction
- (d) Settlement

4. In which one of the following trophic structures of ecosystems, both fungi and bacteria occur?

- (a) Decomposer
- (b) Autotroph
- (c) Heterotroph
- (d) Food web

5. The uplift mechanism that takes place when lighter warm moist air mass rises after encountering a colder and denser air mass causes

- (a) conventional precipitation
- (b) frontal precipitation
- (c) cyclonic precipitation
- (d) orogenic precipitation

6. Which one of the following managed ecosystems has the highest amount of standing crop?

- (a) Agricultural land
- (b) Grazing land
- (c) Human habitation
- (d) Forest plantation

7. Who among the following was the Viceroy of India in 1905, when the Partition of Bengal was announced?

- (a) Lord Ripon
- (b) Lord Canning
- (c) Lord Curzon
- (d) Lord Minto

8. *Nil Darpan*, which deals with the condition of indigo planters, was written by

- (a) Michael Madhusudan Dutta
- (b) Bankim Chandra Chatterjee
- (c) Lal Behari Dey
- (d) Dinabandhu Mitra

9. Who among the following revolutionaries founded the Hindustan Socialist Republican Army?

- (a) Ashfaqullah
- (b) Batukeshwar Dutta
- (c) Ram Prasad Bismil
- (d) Chandra Shekhar Azad

10. Chronologically arrange the following events :

1. Invasion of Alexander
2. Indo-Greek Rule in the North-West
3. Accession of Kanishka
4. Accession of Chandragupta Maurya

Select the correct answer using the code given below.

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

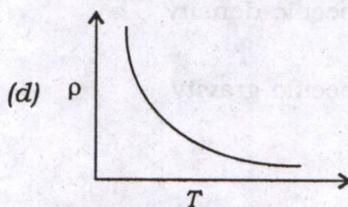
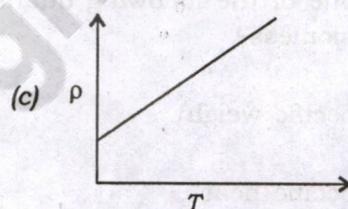
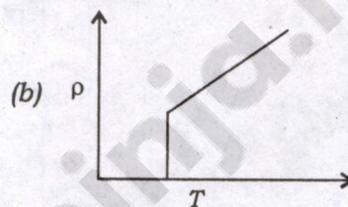
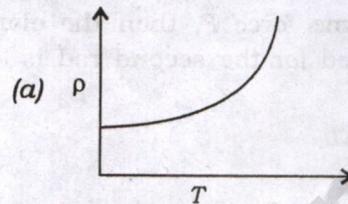
11. Consider the following statements :

1. Ajanta paintings depict stories from the *Jatakas*.
2. Ajanta paintings depict scenes of court-life, processions, men and women at work, festivals, etc.

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

12. Which one of the following schematic graphs correctly represents qualitatively the variation of resistivity ρ with respect to temperature T for a semiconductor?



13. Which one of the following semi-conductors possesses the highest value of band gap E_g ?

- (a) Si
- (b) Ge
- (c) GaAs
- (d) PbS

14. A steel rod having radius r and length L gets stretched along its length by ΔL , when a force F is applied to it. If another rod made of the same material having radius $2r$ and length L is subjected to the same force F , then the elongation observed for the second rod is
- (a) $4\Delta L$
 (b) $2\Delta L$
 (c) $\Delta L/4$
 (d) $\Delta L/2$
15. Which one of the following quantities is dimensionless?
- (a) Specific weight
 (b) Specific heat
 (c) Specific density
 (d) Specific gravity
16. Which one of the following is the correct order of increase of the atomic radius of the elements?
- (a) $C < B < Si < Al$
 (b) $C < B < Al < Si$
 (c) $C < Si < B < Al$
 (d) $Si < Al < C < B$
17. The oxidation state and covalency of Al in $[AlCl(H_2O)_5]^{2+}$ are
- (a) +3 and 3
 (b) +3 and 6
 (c) +2 and 6
 (d) +2 and 1
18. What is the total number of orbitals associated with the principal quantum number 3?
- (a) 3
 (b) 6
 (c) 9
 (d) 12
19. The phenomenon of radioactivity was first discovered by
- (a) Marie Curie
 (b) Henri Becquerel
 (c) Frederick Soddy
 (d) Ernest Rutherford
20. Which one of the following is the correct electronic configuration of copper?
- (a) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$
 (b) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^9 4s^2$
 (c) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2$
 (d) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^8 4s^2$

21. Which one of the following is the shape of BrF_5 ?

- (a) Octahedral
- (b) Square planar
- (c) Square pyramidal
- (d) Trigonal bipyramidal

22. Which of the following statements regarding the Panchayat system is/are correct?

1. The Constitution of India envisages a three-tier system of Panchayat.
2. Intermediate Panchayat stands between the village and district Panchayats in the State where the population is above 20 lakhs.
3. All the seats in a Panchayat shall be filled by direct election from territorial constituencies in the Panchayat area.

Select the correct answer using the code given below.

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

23. Which one of the following is **not** a Fundamental Duty enshrined in the Constitution of India?

- (a) To abide by the Constitution and respect its ideals and institutions
- (b) To protect the national animal and national bird
- (c) To value and preserve the rich heritage of India's composite culture
- (d) To safeguard public property and abjure violence

24. Which of the following statements regarding the President of India is/are correct?

1. The President of India is elected by an electoral college in accordance with the system of proportional representation by means of the single transferable vote.
2. The elected members of the Legislative Assemblies of Union Territories of Delhi and Puducherry take part in the election of the President of India.

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

25. Which one of the following is **not** an objective of One Stop Centre scheme?

- (a) To stop gender-based violence
- (b) To support women affected by violence
- (c) To provide cheaper credit to self-help groups
- (d) To provide specialized services to aggrieved women including victims of acid attack

26. The movement of a substance against a diffusion gradient with the use of energy is known as

- (a) active transport
- (b) passive transport
- (c) water potential gradient
- (d) solute loss

27. Which one of the following has non-nucleated cells at maturity?

- (a) Xylem parenchyma
- (b) Xylem fibre
- (c) Palisade parenchyma
- (d) Companion cell

28. Microscopic, branched and thread-like structures, which can grow and absorb nutrition from organic matter, are found in

- (a) bacteria
- (b) viruses
- (c) fungi
- (d) algae

29. What is the number of chromosomes found in human somatic cell?

- (a) 48
- (b) 56
- (c) 46
- (d) 42

30. Which one of the following animals lays eggs to reproduce?

- (a) Dolphin
- (b) Seal
- (c) Platypus
- (d) Whale

31. Bt Cotton is a genetically modified crop with a foreign gene from

- (a) *Bacillus thermolactis*
- (b) *Bacillus thuringiensis*
- (c) *Bacillus thermophilus*
- (d) *Bacillus tequilensis*

32. In deep ponds and lakes, which one of the following vertical zones receives least light penetration?

- (a) Surface
- (b) Littoral zone
- (c) Limnetic zone
- (d) Profundal zone

33. What is ecological amplitude?

- (a) The range of demands and consequent range of tolerance of a species to the fluctuations in environmental conditions
- (b) The range of tolerance of a species in constant environmental conditions
- (c) The range of demands of a species in constant environmental conditions
- (d) The range of ecological conditions found in a biome

34. Which one of the following organisms can live both in air (outside water) and in water?

- (a) Xerocole
- (b) Mesocole
- (c) Secondary hydrocole
- (d) Mesophyte

35. What is 'duff'?

- (a) Partially decomposed litter
- (b) Weathered rock
- (c) Muddy puddle
- (d) Carcass of a dead animal

36. Which one of the following is a gravity transported soil?

- (a) Alluvial
- (b) Eolian
- (c) Colluvial
- (d) Glacial

37. What is 'pyrophilous organism'?

- (a) Fresh grass growing after ground fire
- (b) Fungi growing in soils of burnt terrains
- (c) Seeds germinating after clear felling of forest
- (d) Organisms with capacity to regenerate the tail after it was lost due to damage

38. Which one among the following States of India experienced the highest fall in population growth rate during 2001-2011 in relation to the previous decade?

- (a) Andhra Pradesh
- (b) Maharashtra
- (c) Tamil Nadu
- (d) Madhya Pradesh

39. Which one of the following statements about the Austric family of languages spoken in India is **not** correct?

- (a) The Austro-Asiatic sub-family of Austric family of languages has Mon-Khmer and Munda as its two main branches.
- (b) The Munda group of languages is spoken only by the Munda tribes living in Chota Nagpur.
- (c) The Mon-Khmer language speakers are found in two non-contiguous areas of Meghalaya Plateau and Nicobar Islands.
- (d) The Khasi language of Meghalaya belongs to the Mon-Khmer branch of Austric family.

40. Which of the following statements about farming in India is/are correct?

1. Dryland farming is confined to the regions having annual rainfall less than 100 cm.
2. Wetland farming regions are often susceptible to flood and soil erosion hazards.

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

41. Which one of the following is a lagoon?

- (a) Pulicat
- (b) Deepor Beel
- (c) Kolleru
- (d) Gohna

42. Which one of the following is **not** observed by the stations operated by the Central Water Commission?

- (a) Water level
- (b) Silt
- (c) Water conservation
- (d) Water discharge

43. In a beta decay process, a nucleus spontaneously emits an electron (or positron) accompanied by the emission of antineutrino (or neutrino). Which one of the following statements is **not** true about neutrinos/antineutrinos?

- (a) They are uncharged particles.
- (b) Their masses are very small in comparison to that of an electron.
- (c) They possess charge of magnitude equal to electric charge.
- (d) They interact with other particles through weak force only.

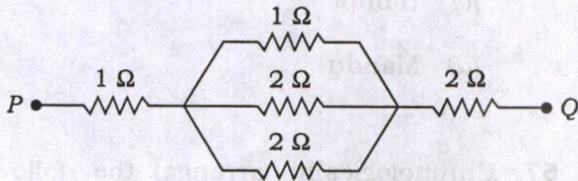
44. The radius of the first orbit ($n = 1$) of a hydrogen atom is 0.529 \AA . Then the radius of the second orbit ($n = 2$) of He^+ ion will be

- (a) 1.058 \AA
- (b) 2.116 \AA
- (c) 4.232 \AA
- (d) 0.529 \AA

45. Which one of the following statements for the emission spectrum of hydrogen is true?

- (a) The Lyman series lies in the visible region and the Paschen series lies in the infrared region.
- (b) The Lyman series lies in the ultraviolet region and the Paschen series lies in the visible region.
- (c) Both the Lyman and the Paschen series lie in the visible region.
- (d) The Lyman series lies in the ultraviolet region and the Paschen series lies in the infrared region.

46. Consider the following combination of resistors :



The equivalent resistance of the combination of resistors between P and Q is

- (a) 2 Ω
- (b) 3 Ω
- (c) 3.5 Ω
- (d) 2.5 Ω

47. Which one of the following zones of atmosphere is the farthest from the earth surface?

- (a) Stratosphere
- (b) Mesosphere
- (c) Ionosphere
- (d) Troposphere

48. Which one of the following ecological adaptations is **not** 'dormancy'?

- (a) Hibernation
- (b) Aestivation
- (c) Diapause
- (d) Cyclomorphosis

49. What are 'circadian rhythms'?

- (a) Daily responses of animals to light conditions
- (b) Growth of plant tip with changing light direction
- (c) Annual responses of living organisms to light conditions
- (d) Daily responses of animals to water availability

50. What is 'bioenergetic approach' in modern ecology?

- (a) Study of similarities and differences in food relationships among living organisms and various forms of energy supporting their life
- (b) Study of energy retention by ecosystems under threat
- (c) Study of energy loss by ecosystems under threat
- (d) Study of energy in deep oceans during cyclone buildup

51. Which one of the following is defined as a natural biological unit tied together by the sharing of a common gene pool?

- (a) Vegetation
- (b) Flora
- (c) Fauna
- (d) Species

52. Which one of the following is **not** a non-renewable energy source?

- (a) Coal
- (b) Oil
- (c) Sunlight
- (d) Nuclear fuel

53. The typical Nagara style Shikhara is visible in which one of the following temples?

- (a) Brihadeshwara Temple, Thanjavur
- (b) Dashavatara Temple, Deogarh
- (c) Kailasanatha Temple, Ellora
- (d) Meenakshi Temple, Madurai

54. Which one of the following Harappan centres specialized in making shell objects?

- (a) Balakot
- (b) Kalibangan
- (c) Mohenjo-daro
- (d) Banawali

55. Who among the following was the first to decipher the Ashokan inscriptions?

- (a) William Jones
- (b) John Marshall
- (c) James Prinsep
- (d) Alexander Cunningham

56. The structure of Mahanavami Dibba is situated in which one of the following places?

- (a) Ujjain
- (b) Gaur
- (c) Hampi
- (d) Mandu

57. Chronologically arrange the following events :

1. Third Battle of Panipat
2. Invasion of Nadir Shah
3. Impeachment of Warren Hastings
4. The Diwani of Bengal transferred to the East India Company

Select the correct answer using the code given below.

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

58. Lassaigne's test is used for the detection of which of the following elements?

- (a) N, S, P, Cl
- (b) C, N, P, Br
- (c) C, N, S, I
- (d) C, N, S, Br

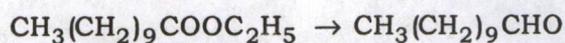
59. What is the use of heavy water?

- (a) It is used in nuclear reactors as a moderator
- (b) It is used in nuclear reactors as fuel
- (c) It is used in radiation therapy for cancer
- (d) It is used in water softening plants

60. Which one of the following statements about Fehling's test is **not** correct?

- (a) Fehling's A solution is aqueous copper sulphate.
- (b) Fructose gives a positive Fehling's test.
- (c) Red-brown ppt of CuO is obtained in the reaction.
- (d) Aromatic aldehydes do not respond to this test.

61. Which one of the following reagents is used to carry out the transformation given below?



- (a) DIBAL-H/ H_2O
- (b) $\text{H}_2/\text{Pd-BaSO}_4$
- (c) SnCl_2/HCl
- (d) LiAlH_4

62. The electrophile generated in sulphonation of benzene from fuming sulphuric acid is

- (a) SO_3^+
- (b) SO_3H
- (c) SO_3
- (d) SO_2H

63. The reaction of 1,2-dibromoethane with alcoholic KOH yields

- (a) ethene
- (b) ethyne
- (c) 1-bromo-2-hydroxyethane
- (d) 1-bromoethene

64. Consider the following statements regarding Janani Suraksha Yojana (JSY) :

1. JSY is a safe motherhood intervention under the National Health Mission.
2. The objective of JSY is to reduce maternal and neonatal mortality.

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

65. Which one of the following statements regarding Jan Shikshan Sansthan (JSS) is **not** correct?

- (a) JSS aims to provide vocational skills to non-literate, neo-literate and person with rudimentary level of education.
- (b) JSS is meant for vocational education of women only.
- (c) JSS works at the doorstep of the beneficiaries.
- (d) JSS receives grants from the government for skill development.

66. According to the National Multi-dimensional Poverty Index (MPI) constructed by the NITI Aayog, the education dimension is represented by parameters pertaining to

1. school attendance
2. years of schooling
3. literacy rate in the region

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

67. What is Academic Bank of Credit (ABC) as per the National Education Policy (NEP), 2020?

- (a) ABC enables credits awarded to students for one programme from a recognized higher education institution to be transferred or redeemed by another higher education institution
- (b) ABC is the bank account of the students for direct transfer of scholarship
- (c) ABC is the newly created institution for providing credits to academic institutions for building infrastructure
- (d) ABC is an autonomous banking system dealing with the financial management of higher education institutions under NEP, 2020

68. Which one of the following expressions has dimensions of energy (here V is the voltage across a resistor of resistance R and I is the current through the resistor, and t is the time)?

(a) $\frac{V^2}{I}t$

(b) $\frac{V^2}{R}t$

(c) $\frac{I^2}{R}t$

(d) $\frac{I^2}{V}t$

69. The angular acceleration of a simple pendulum at an angle α from the vertical is proportional to

- (a) $\tan \alpha$
- (b) $\sin^2 \alpha$
- (c) $\sin \alpha$
- (d) $\sin 2\alpha$

70. Which one of the following statements about X-rays is **not** correct?

- (a) X-rays are longitudinal waves.
- (b) X-rays are transverse waves.
- (c) X-rays are electromagnetic waves.
- (d) X-rays do not require a medium to propagate.

71. The magnitude of work done in moving an electron across two points having a potential difference 6 V is (electronic charge = 1.6×10^{-19} C)

- (a) 1.2×10^{-19} J
- (b) 9.6×10^{-19} J
- (c) 4.8×10^{-19} J
- (d) 1.6×10^{-19} J

72. Reverberation of sound ensures

- (a) a single refraction
- (b) a single reflection
- (c) multiple reflections
- (d) multiple refractions

73. Which one of the following would be a suitable plant to test that chlorophyll is necessary for photosynthesis?

- (a) Lady Plymouth
- (b) Cactus
- (c) Cuscuta
- (d) Oleander

74. Quadrat is generally used to enumerate the number of

- (a) animals breeding in a pond
- (b) burrows present in an anthill
- (c) plants present in a unit area
- (d) epiphytes on a tree

75. "Athlete's foot" is a skin disease caused by

- (a) virus
- (b) fungus
- (c) alga
- (d) bacterium

76. Which one of the following is a 'false fruit'?

- (a) Peach
- (b) Banana
- (c) Apple
- (d) Apricot

77. Which one among the following States is the largest producer of natural gas in India?
- Madhya Pradesh
 - Jharkhand
 - Bihar
 - Rajasthan
78. Which of the following statements about river valleys is/are correct?
- Kullu Valley is an example of strike valley.
 - Kangra Valley is a transverse valley.
 - Narmada flows in a rift valley.
- Select the correct answer using the code given below.
- 1 and 2
 - 2 and 3
 - 2 only
 - 3 only
79. The Kumaon Himalayas lie between
- Indus River and Satluj River
 - Satluj River and Kali River
 - Chenab River and Satluj River
 - Bhagirathi River and Alaknanda River
80. Which one of the following glaciers is *not* part of Pir Panjal Range?
- Urdok
 - Sonapani
 - Bara Shigri
 - Gangri
81. Little Andaman is separated from Great Andaman by
- Ten Degree Channel
 - Homfray's Strait
 - Duncan Passage
 - Austen Strait
82. Which one of the following is the international convention agreement specifying the commitments of different countries to mitigate climate change?
- Montreal Protocol
 - Kyoto Protocol
 - Paris Agreement
 - Bali Agreement
83. Which one of the following is a known metallophyte for Fe?
- Eichhornia crassipes*
 - Miconia lutescens*
 - Astragalus acemosus*
 - Mentha arvensis*
84. Which one of the following is a 'drupe'?
- Orange
 - Brinjal
 - Coconut
 - Tomato

85. Duckweed or Azolla is used as a/an

- (a) pesticide
- (b) biofertilizer
- (c) arsenic indicator
- (d) antiseptic

86. Which one of the following 'algae' is **not** known identified partner to form 'lichen'?

- (a) *Nostoc*
- (b) *Stigonema*
- (c) *Trentepohlia*
- (d) *Vaucheria*

87. Which one of the following is a secondary metabolite produced by some plants?

- (a) Starch
- (b) Terpenoids
- (c) Malate
- (d) Sugar

88. What is 'phenology'?

- (a) Study of phenol production in plants
- (b) Study of periodical phenomena of plants, such as the time of flowering in relation to climate
- (c) Study of excretory pathway of phenols by herbivores
- (d) Study of phenotypic variation in newborn individuals of cats

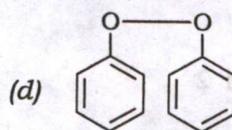
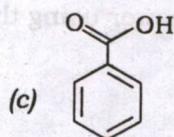
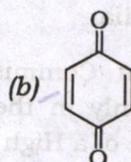
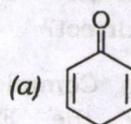
89. The ozonolysis of which one of the following alkenes yields a mixture of propan-2-one and formaldehyde?

- (a) Propene
- (b) Butene
- (c) 2-Methylpropene
- (d) 2-Methylbutene

90. Which one of the following compounds is used for the synthesis of silicones?

- (a) SiCl_4
- (b) $(\text{CH}_3)_2\text{Si}(\text{OH})_2$
- (c) SiO_2
- (d) Na_4SiO_4

91. Which one of the following products is formed by the oxidation of phenol with chromic acid?



92. Which of the following statements relating to SWIFT is/are correct?

1. It is a messaging network used by banks and financial institutions globally for quick and faultless exchange of information pertaining to financial transactions.
2. It stands for Society for Worldwide Interbank Financial Telecommunications.

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

93. Which of the following statements relating to the State Election Commissioner is/are correct?

1. The State Election Commissioner is appointed by the Election Commission of India.
2. The State Election Commissioner can be removed only in the same manner as a Judge of a High Court.

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

94. Which one of the following statements relating to the duration of Panchayat is **not** correct?

- (a) Every Panchayat shall continue for six years from the date of its first meeting.
- (b) A Panchayat can be dissolved before the expiry of its term in accordance with the procedure prescribed by State Law.
- (c) Election to Panchayat must take place within six months of its dissolution.
- (d) A Panchayat reconstituted after premature dissolution shall continue only for a remainder of the period.

95. Which of the following words/phrases was **not** incorporated into the Preamble to the Constitution of India by the Forty-second Amendment?

- (a) Socialist
- (b) Secular
- (c) Unity and integrity of the nation
- (d) Dignity of the individual

96. Which one of the following statements with regard to the Attorney-General of India as per Article 76 of the Constitution of India is **not** correct?

- (a) The Attorney-General of India is appointed by the Chief Justice of India.
- (b) A person who is qualified to be appointed a Judge of the Supreme Court of India is appointed as the Attorney-General of India.
- (c) In the performance of his/her duties, the Attorney-General shall have right of audience in all courts in the territory of India.
- (d) The Attorney-General shall hold office during the pleasure of the President of India.

97. Which part of independent India had held the first election based on universal adult franchise?

- (a) Hyderabad
- (b) Manipur
- (c) West Bengal
- (d) Nagaland

98. According to the NITI Aayog SDG India Index, 2020-21, which one among the following States is a Front Runner in its performance on SDG-14?

- (a) Tripura
- (b) Maharashtra
- (c) Punjab
- (d) Odisha

99. The force of buoyancy on an object floating on water is F , while it is S on an object that sinks in water. The weight of both the objects is W . Which one of the following is always true?

- (a) $F = W$ and $S = 0$
- (b) Both F and S have upward direction
- (c) F has upward direction and S has downward direction
- (d) $F = W$ and $S > W$

100. Infrasonic sounds have frequencies

- (a) above 25 kHz
- (b) between 20 kHz and 25 kHz
- (c) below 20 Hz
- (d) between 20 Hz and 20 kHz

101. When the temperature of a gas increases, the average speed of its molecules

- (a) remains the same
- (b) decreases
- (c) increases
- (d) either increases or decreases depending on the gas

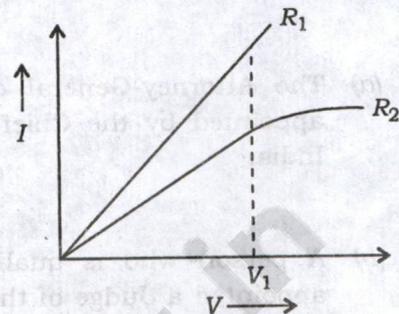
102. Which one of the following is the quantity of transfer of linear momentum to the floor, when a dumbbell of mass 500 g falls from a height of 5 m and stops after hitting the floor (take $g = 10 \text{ m/s}^2$)?

- (a) 0.5 kg-m/s
- (b) 5.0 kg-m/s
- (c) 10.0 kg-m/s
- (d) 1.0 kg-m/s

103. The gravitational force (\mathbf{F}) on mass M due to another mass m at a distance x is given by (vector \mathbf{x} is from mass M to mass m and unit vector $\hat{\mathbf{x}}$ is the corresponding unit vector)

- (a) $\mathbf{F} = G \frac{Mm}{x^3} \mathbf{x}$
- (b) $\mathbf{F} = -G \frac{Mm}{x^3} \mathbf{x}$
- (c) $\mathbf{F} = -G \frac{Mm}{x^3} \hat{\mathbf{x}}$
- (d) $\mathbf{F} = G \frac{Mm}{x^3} \hat{\mathbf{x}}$

104. The I - V graph for two resistors, resistor 1 (R_1) and resistor 2 (R_2), are shown below :



Which one of the following statements about these resistors is **not** correct?

- (a) R_1 follows Ohm's law.
- (b) R_2 does not follow Ohm's law after voltage V_1 .
- (c) Up to V_1 , the resistance of R_1 is smaller than that of R_2 .
- (d) Up to V_1 , the resistance of R_1 is larger than that of R_2 .

105. In which of the following situations will an applied force do negative work on a body?

- (a) The applied force and displacement of the body are at 135° to each other
- (b) The applied force and displacement of the body are parallel to each other
- (c) The applied force and displacement of the body are perpendicular to each other
- (d) The applied force and displacement of the body are at 45° to each other

106. Which one of the following is a tributary of Krishna River?

- (a) Harangi
- (b) Hiran
- (c) Purna
- (d) Munneru

107. Which of the following statements about breaks in the South-West Monsoon is/are correct?

1. In Northern India, rains are likely to fail if the rain-bearing storms are not very frequent along the monsoon trough.
2. In the West Coast, the dry spells occur when winds blow parallel to the coast.

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

108. According to the Solid Waste Management Rules, 2016, the responsibility of waste generators has been fixed for segregation of waste in which of the following streams?

- (a) Biodegradable and non-biodegradable wastes
- (b) Metallic and non-metallic wastes
- (c) Wet, dry and domestic hazardous wastes
- (d) Recyclable and non-recyclable wastes

109. Which one of the following countries is landlocked?

- (a) Paraguay
- (b) Uruguay
- (c) Suriname
- (d) Colombia

110. Which one of the following States of India has the largest area under ravines?

- (a) Uttar Pradesh
- (b) Himachal Pradesh
- (c) Punjab
- (d) Gujarat

111. According to the Climate Change Performance Index (CCPI), 2023, India climbed two spots to rank

- (a) seventh
- (b) eighth
- (c) ninth
- (d) tenth

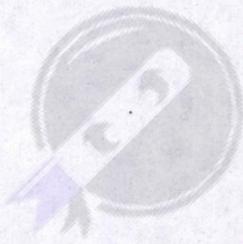
112. Freddie, Elton, Oban, Siyaya, Aasha, Tbilisi, Sasha and Savannah are names of

- (a) nuclear reactors of Ukraine
- (b) cheetahs brought to India from Namibia
- (c) National Parks of Tanzania
- (d) tropical and sub-tropical grasslands

- 113.** Who among the following players won the Golden Boot Award in FIFA World Cup, 2022?
- (a) Lionel Messi
 - (b) Kylian Mbappe
 - (c) Angel Di Maria
 - (d) Thomas Muller
- 114.** Thundi Beach and Kadmat Beach, which recently entered the coveted list of Blue Beaches, an eco-label given to the cleanest beaches in the world, are located in
- (a) Puducherry
 - (b) Lakshadweep
 - (c) Kerala
 - (d) Andaman and Nicobar Islands
- 115.** The recent outbreak of extremely contagious lumpy skin disease affects mostly which one of the following animals?
- (a) Cow
 - (b) Dog
 - (c) Pig
 - (d) Horse
- 116.** According to the United Nations Environment Programme (UNEP), one of the recent large-scale accidental releases of methane gas into the ocean occurred in
- (a) Exxon Valdez
 - (b) Nord Stream
 - (c) Deepwater Horizon
 - (d) Atlantic Empress
- 117.** The area under millets cultivation is the highest in
- (a) Asia
 - (b) Africa
 - (c) America
 - (d) Europe
- 118.** Who among the following is credited with pioneering the oral rehydration therapy?
- (a) Anandi Joshi
 - (b) Bidhan Chandra Roy
 - (c) Dilip Mahalanabis
 - (d) Siddhartha Mukherjee
- 119.** According to scientists, which one of the following is the only known animal, except for humans, capable of telling the difference between odd and even numbers?
- (a) Butterfly
 - (b) Honeybee
 - (c) Dragonfly
 - (d) Cricket
- 120.** Who among the following is the recipient of Nobel Prize in Medicine in 2022?
- (a) David Julius
 - (b) Svante Paabo
 - (c) Charles M. Rice
 - (d) Ardem Patapoutian

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