

COMMON P. G. ENTRANCE TEST – 2024 (CPET-2024)

Test Booklet No. : 00564

Subject Code : 11

Hall Ticket No. :

Subject : ENVIRONMENTAL SCIENCE

TEST BOOKLET

Time Allowed : 60 Minutes

Full Marks : 80

: INSTRUCTIONS TO CANDIDATES :

1. The Test Booklet contains 15 pages including the cover page and 80 (Question Nos. 1 to 80) multiple choice questions.
2. DO NOT break open the seal of the Test Booklet until the invigilator instructs to do so.
3. The candidates must check discrepancy, if any (like up-printed or torn or missing pages or missing questions) in the Test Booklet immediately after breaking the seal of the Test Booklet. If detected, the invigilator may be requested to replace the same.
4. Candidates are required to fill up and darken the **Hall Ticket No., Test Booklet Serial No.** and **OMR Answer Sheet Serial No.** in attendance sheet carefully. Wrongly filled in OMR Answer Sheet is liable for rejection.
5. Each question has four choices / answers marked (A), (B), (C), (D). Candidate has to select the most appropriate choice / answer to each question and darken the oval completely against the question number provided in the OMR Answer Sheet.
6. Indicate only one choice / answer from the options provided by darkening the appropriate oval in the OMR Answer Sheet. More than one response to a question shall be treated as a wrong answer.
7. Use only **Black Ball Point Pen** for darkening the oval for answering.
8. All the questions are compulsory and they carry equal marks. The total marks scored by a candidate depends on the number of correct choices / answers darkened in the OMR Answer Sheet. There will be no negative marking for wrong answers.
9. No candidate shall be allowed to leave the Examination Hall / Room till all OMR Answer Sheets have been collected by the invigilator.
10. On completion of the entrance test, the original OMR Answer Sheet be handed over to the invigilator. Candidates are allowed to take the second copy of the OMR Answer Sheet along with the used Test Booklet for reference.
11. Candidates are not allowed to carry any personal belongings including electronic devices such as scientific calculator, cell phones, headphones, earbuds, or any other type of devices that allow communication of any kind inside the Examination Room / Hall.
12. The candidates are advised not to scribble or make any mark on the OMR Answer Sheet except marking the answers at the appropriate places and filling up the details required. Rough work, if any, may be done in the blank sheet(s) provided at the end of the Test Booklet.
13. Any malpractice / use of unfair means will lead to your disqualification from the entrance test / admission process and may also lead to appropriate legal action as deemed fit.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

GO – 39/11

(Turn over)

SEAL

1. The reaction centre of Photosystem II is :

(A) P700	(B) P645
(C) P680	(D) P663
2. With regard to nitrogen assimilation, which among the following statements is wrong ?

(A) Oxidation of ammonia to nitrite is carried out by soil bacteria of the <i>Nitroso</i> group.
(B) Nitrogen present as nitrate can be readily used by plants.
(C) The enzymes nitrogenase are able to function inside the heterocysts due to the absence of Photosystem I in it.
(D) Nitrogen-fixing bacteria occur either as free-living microorganisms or in symbiotic association with higher plants, primarily of legume types.
3. The *Avena* coleoptiles curvature assay, first used by Frits Went, was a bioassay for which hormone ?

(A) Auxin	(B) Cytokinin
(C) Gibberellins	(D) Ethylene
4. When filaments are united but anthers are free, the condition is known as :

(A) Syngenesious	(B) Adelphous
(C) Epipetalous	(D) Gamopetalous
5. The teleutospores germinate to produce :

(A) Aecidiospores	(B) Uredospores
(C) Pycnospores	(D) Basidiospores
6. The Red Rot disease of sugarcane is caused by :

(A) <i>Albugo candida</i>	(B) <i>Colletotrichum falcatum</i>
(C) <i>Fusarium oxysporium</i>	(D) <i>Claviceps purpurea</i>
7. Which among the following lichens is known as old man's beard ?

(A) <i>Usnea</i>	(B) <i>Parmelia</i>
(C) <i>Cetraria</i>	(D) <i>Cladonia</i>

8. *Batrachospermum moniliforme* is a :
(A) Blue-green alga (B) Green alga
(C) Brown alga (D) Red alga
9. Minamata disease is caused by :
(A) Methyl mercury poisoning (B) Cobalt chloride poisoning
(C) Lead nitrate poisoning (D) Cadmium chloride poisoning
10. The World Wetlands Day is celebrated every year on :
(A) April 22 (B) December 01
(C) June 05 (D) February 02
11. Which one of the following geological processes is responsible for the formation of fossil fuels ?
(A) Weathering (B) Erosion
(C) Metamorphism (D) Diagenesis
12. Which of the following is not a common mineral found in igneous rocks ?
(A) Quartz (B) Calcite
(C) Feldspar (D) Mica
13. Interpetiolar stipule is a characteristic feature of which family ?
(A) Poaceae (B) Cyperaceae
(C) Rubiaceae (D) Orchidaceae
14. Which of the following is not a result of plate tectonics ?
(A) Earthquakes (B) Volcanic eruptions
(C) Mountains (D) Hurricanes
15. In which of the following environment, weathering processes will occur at the slowest rate ?
(A) Cold and dry desert (B) Warm and humid rainforest
(C) Temperate forest (D) Coastal region with salt spray

16. What do stromatolites represent in the fossil record ?
(A) Ancient plant roots
(B) Fossilized tree trunks
(C) Layered structure created by cyanobacteria
(D) Impressions of fish scales
17. Which type of stress is responsible for the formation of normal faults ?
(A) Compressional stress
(B) Tensional stress
(C) Shear stress
(D) Confining stress
18. Which of the following is a volcanic rock with a glassy texture ?
(A) Pumice
(B) Obsidian
(C) Scoria
(D) Tuff
19. The discontinuity which separates Crust from Mantle is known as :
(A) Mohorovicic
(B) Guttenberg-Weichert
(C) Lehman
(D) Conard
20. The Bhopal gas tragedy in 1984 was caused due to the leakage of which gas from Union Carbide India Limited ?
(A) Methyl isocyanate
(B) Methyl bromide
(C) Methane
(D) Carbon monoxide
21. Which among the following is an example of fossil genus of vascular plants ?
(A) *Gnetum*
(B) *Rhynia*
(C) *Ginkgo*
(D) *Funaria*
22. What is the primary source of water for desert oases ?
(A) Rainfall
(B) Ocean tides
(C) Underground springs
(D) Glacier melt

23. What type of information can be derived from the presence of dust particles in ice cores ?

- (A) Past vegetation patterns
- (B) Past precipitation levels
- (C) Past volcanic activities
- (D) Past sea levels

24. Which mineral is commonly known as fool's gold ?

- (A) Chalcopyrite
- (B) Pyrite
- (C) Galena
- (D) Marcasite

25. Which among the following instruments removes dust particles from a flowing air ?

- (A) AAS
- (B) GC-MS
- (C) ESP
- (D) HPLC

26. Succus entericus is :

- (A) Gastric juice
- (B) Chyme
- (C) Intestinal juice
- (D) Pancreatic juice

27. The type of joint between the human skull bones is called :

- (A) Cartilaginous joint
- (B) Fibrous joint
- (C) Hinge joint
- (D) Saddle joint

28. Steroid hormones influence the cellular activities by :

- (A) Changing the permeability of the cell membrane
- (B) Binding to DNA and forming gene-hormone complex
- (C) Using aquaporin channels as second messenger
- (D) Activating cyclic AMP located on the cell membrane

29. Impulse of heart beat originates from :

- (A) AV node
- (B) Vagus nerve
- (C) Cardiac nerve
- (D) SA node

30. Which one of the following belongs to the Phylum Arthropoda ?

- (A) Flying fish
- (B) Cuttle fish
- (C) Puffer fish
- (D) Silver fish

31. In which of the following disease the mosquito transmitted pathogen causes chronic inflammation of lymphatic vessels ?
- (A) Elephantiasis (B) Ascariasis
(C) Amoebiasis (D) Malaria
32. Frogs differ from human beings in possessing :
- (A) Thyroid as well as parathyroid glands
(B) Paired cerebral hemispheres
(C) Nucleated red blood cells
(D) Hepatic portal system
33. In cockroach, tegmina arises from :
- (A) Mesothorax (B) Metathorax
(C) Prothorax (D) Abdomen
34. Which of the following group of animals belongs to the same phylum ?
- (A) Prawn, Scorpion, *Locusta*
(B) Sponge, Sea anemone, Starfish
(C) Malarial parasite, *Amoeba*, Mosquito
(D) Earthworm, Pinworm, Tapeworm
35. Persons with 'AB' blood group are called "Universal recipients" because :
- (A) Absence of antigens A and B on the surface of RBCs
(B) Absence of antigens A and B in plasma
(C) Presence of antibodies, anti-A and anti-B on RBCs
(D) Absence of antibodies, anti-A and anti-B in plasma
36. Which one of the following statements is correct with respect to immunity ?
- (A) The antibodies against smallpox pathogen are produced by T-lymphocytes.
(B) Preformed antibodies need to be injected to treat the bite by a viper snake.
(C) Antibodies are protein molecules, each of which has 4 light chains.
(D) Rejection of a kidney graft is the function of B-lymphocytes.

37. The number of mitotic divisions needed for a single cell to make 256 cells is :
(A) 64 (B) 128
(C) 14 (D) 8
38. Which part of the human brain is responsible for thermoregulation ?
(A) Cerebrum (B) Corpus callosum
(C) Hypothalamus (D) Medulla oblongata
39. After 1 hour, $\frac{1}{8}$ of the initial mass of a certain radioactive isotope remains undecayed.
The half life of the isotope is :
(A) 20 minute (B) 30 minute
(C) 45 minute (D) 08 minute
40. Optical fibre works on the principle of :
(A) Interference (B) Total internal reflection
(C) Refraction (D) Diffraction
41. An electric bulb is rated 220 V and 100 W. The resistance of the filament of the electric bulb is :
(A) 220 Ω (B) 242 Ω
(C) 440 Ω (D) 484 Ω
42. Which of the following substances have positive permeability and negative magnetic susceptibility ?
(A) Ferromagnetic (B) Paramagnetic
(C) Diamagnetic (D) Ferrimagnetic
43. The ozone layer of atmosphere absorbs :
(A) Visible radiations (B) Infrared radiations
(C) Ultraviolet radiations (D) Radio waves
44. The process of secretion of water droplets from the pores of plants is known as :
(A) Transpiration (B) Guttation
(C) Respiration (D) Photosynthesis

45. When an impurity is doped into an intrinsic semiconductor, the conductivity of the semiconductor :
- (A) Increases (B) Remains same
(C) Decreases (D) Becomes zero
46. A liquid disturbed by stirring comes to rest after some time due to its property of :
- (A) Surface tension (B) Viscosity
(C) Molecular attraction (D) Low compressibility
47. The temperature in the Fahrenheit scale corresponding to 253 K is :
- (A) -4°F (B) 4°F
(C) -12°F (D) 12°F
48. When a constant force is applied to a body it moves with uniform :
- (A) Velocity (B) Speed
(C) Acceleration (D) Momentum
49. For a satellite revolving in an orbit, which of the following is not conserved ?
- (A) Linear momentum (B) Angular momentum
(C) Total energy (D) Aerial velocity
50. Which of the following cannot travel through vacuum ?
- (A) Light waves (B) Heat waves
(C) X-rays (D) Sound waves
51. Which of the following is an amorphous solid ?
- (A) Silicon carbide (SiC) (B) Chrome alum
(C) Quartz glass (SiO_2) (D) Graphite
52. What is the molality of a solution in which 18 g of glucose (Mol. wt. = 180) is dissolved in 500 g of water ?
- (A) 0.5 m (B) 2.0 m
(C) 0.2 m (D) 1.0 m

53. The shape of PCl_5 is :

(A) Linear

(C) Octahedral

(B) Tetrahedral

(D) Trigonal bipyramidal

54. In which of the following conditions a chemical reaction cannot occur ?

(A) ΔH decreases and ΔS increases

(B) ΔH increases and ΔS decreases

(C) ΔH and ΔS increases and $T\Delta S > \Delta H$

(D) ΔH and ΔS decreases and $\Delta H > T\Delta S$

55. In Na_2O , the oxidation state of oxygen is :

(A) +1

(C) +2

(B) -1

(D) -2

56. Total number of σ and π bonds present in ethyne are :

(A) 2 and 3 respectively

(C) 3 and 2 respectively

(B) 4 and 2 respectively

(D) 1 and 2 respectively

57. Which of the following molecule has zero dipole moment ?

(A) BCl_3

(C) NH_3

(B) H_2O

(D) SO_2

58. Which one is acidic auxochromic group ?

(A) $-\text{NO}_2$

(C) $-\text{OH}$

(B) $-\text{NH}_2$

(D) $-\text{OR}$

59. Ag^+ is isoelectronic with :

(A) Cu^+

(C) Zn^{2+}

(B) Au^{3+}

(D) Cd^{2+}

60. Which one of the following is the weakest Lewis base ?

(A) NH_2^-

(C) CH_3^-

(B) F^-

(D) OH^-

61. Which among the following is a positional average ?
(A) Arithmetic Mean (B) Geometric Mean
(C) Median (D) Mode
62. Which among the following statements is incorrect with regard to the properties of Normal Distribution ?
(A) Normal Distribution Curve is symmetric about mean.
(B) Normal Distribution is bimodal in nature.
(C) Normal Distribution Curve is always bell-shaped.
(D) Normal Distribution follows Empirical Rule.
63. Two dice are thrown together. The probability that at least one will show its digit greater than 3 is :
(A) $\frac{3}{4}$ (B) $\frac{1}{4}$
(C) $\frac{1}{2}$ (D) $\frac{1}{8}$
64. The standard deviation of first 10 natural numbers is :
(A) 5.4 (B) 3.87
(C) 2.87 (D) 2.97
65. Who is the founder of Chi-square distribution ?
(A) A. L. Bowley (B) Charles Sanders Peirce
(C) Francis Ysidro Edgeworth (D) Karl Pearson
66. Find two numbers whose arithmetic mean is 34 and geometric mean is 16 :
(A) 60 and 8 (B) 66 and 2
(C) 62 and 6 (D) 64 and 4
67. Consider the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10. If 1 is added to each number, the variance of the numbers so obtained is :
(A) 6.5 (B) 8.25
(C) 4.87 (D) 3.87

68. The line joining the areas having the same rainfall is called :

- (A) Isobar
- (B) Isohyte
- (C) Isotherm
- (D) Isohaline

69. The Mediterranean type of climate is characterised by :

- (A) Dry summer and mild, wet winters
- (B) Moist summer and dry winters
- (C) Hot summer and moist winters
- (D) Cool summer and dry winters

70. Which of the following soil horizons contains the most organic matters ?

- (A) O horizon
- (B) A horizon
- (C) B horizon
- (D) C horizon

71. The Indian Monsoon is not affected by which of the following factors ?

- (A) Jet Streams
- (B) El Nino Southern Oscillation (ENSO)
- (C) Indian Ocean Dipole (IOD)
- (D) Agulhas Current of Indian Ocean

72. In India, which of the following states has the largest inland saline wetland ?

- (A) Gujarat
- (B) Haryana
- (C) Rajasthan
- (D) Madhya Pradesh

73. What is the purpose of a firewall in a computer network ?

- (A) To improve internet speed
- (B) To block unauthorized access
- (C) To use fibre optics
- (D) To filter emails

74. What is the purpose of a GPU ?
- (A) To play MP3 files
 - (B) To process and render high end graphics and images
 - (C) To store and transmit data
 - (D) To connect to the LAN
75. In india which of the following is not correct about "DigiLocker" ?
- (A) Signing for DigiLocker requires an individual's email address.
 - (B) DigiLocker is a platform eliminating the use of physical documents.
 - (C) Universities registered with DigiLocker can store electronic copies of certificates directly into student's lockers.
 - (D) Students cannot download ABC/APAAR data.
76. What was the primary goal of creating the World Wide Web (WWW) ?
- (A) Online shopping
 - (B) Scientific research collaboration
 - (C) Social media networking
 - (D) Video streaming
77. What does the acronym "URL" stand for in the context of web addresses ?
- (A) Uniform Resource Locator
 - (B) Universal Radio Link
 - (C) Unified Response Language
 - (D) Unique Routing Language
78. Which among the following statements is correct about Ecosystem ?
- (A) The flow of energy is cyclic.
 - (B) The flow of nutrients is unidirectional.
 - (C) The Ecosystem is a dynamic system.
 - (D) The Gymnosperms act as pioneer of succession in a xeric environment.

79. "Organ Sui Generis" is found in :

(A) *Equisetum*

(C) *Lycopodium*

(B) *Selaginella*

(D) *Sphagnum*

80. The relationship, in which one organism is benefitted and the other harmed is known as :

(A) Symbiosis

(C) Ammensalism

(B) Commensalism

(D) Parasitism



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SPACE FOR ROUGH WORK

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