

COMMON P.G. ENTRANCE TEST-2022 (CPET-2022)

Subject Code : **62**

Test Booklet No.:

Entrance Subject : **Zoology**

Hall Ticket No.:

TEST BOOKLET

Time Allowed : **90 Minutes**

Full Marks : **70**

INSTRUCTIONS TO CANDIDATES

1. **Please do not open this Question Booklet until asked to do so.**
2. Check the completeness of the Question Booklet immediately after opening.
3. Enter your **Hall Ticket No.** on the Test Booklet in the box provided alongside. **Do not** write anything else on the Test Booklet.
4. Fill up & darken Hall Ticket No. & Test Booklet No. in the OMR Answer Sheet as well as fill up Test Booklet Serial No. & OMR Answer Sheet Serial No. in the Attendance Sheet carefully. Wrongly filled up OMR Answer Sheets are liable for rejection.
5. Each question has four answer options marked (A), (B), (C) & (D).
6. Answers are to be marked on the Answer Sheet, which is provided separately.
7. Choose the most appropriate answer option and darken the oval completely, corresponding to (A), (B), (C) or (D) against the relevant question number.
8. Use only **Blue/Black Ball Point Pen** to darken the oval for answering.
9. Please do not darken more than one oval against any question, as scanner will read such markings as wrong answer.
10. **Each question carries equal marks. There will be no negative marking for wrong answer.**
11. **Electronic items such as calculator, mobile, etc., are not permitted inside the examination hall.**
12. Don't leave the examination hall until the test is over and permitted by the invigilator.
13. **The candidate is required to handover the original OMR sheet to the invigilator and take the question booklet along with the candidate's copy of OMR sheet after completion of the test.**
14. Sheet for rough work is appended in the Test Booklet at the end.

1. Epithelial tissues are always found immediately adjacent to connective tissues because they
 - (A) lack blood vessels
 - (B) can make the exchanges with blood critical for their survival and function.
 - (C) have no extracellular matrix
 - (D) A and B
2. A series of functional changes that cause a sperm's tail to beat more vigorously and prepare its plasma membrane to fuse with the oocyte's plasma membrane is called
 - (A) fertilization
 - (B) implantation.
 - (C) capacitation.
 - (D) syngamy.
3. At gap junctions, neighboring cells are connected by membrane proteins called
 - (A) connexins
 - (B) connexons
 - (C) Glycophorin
 - (D) None of the above
4. Approximately how long after fertilization does implantation of an embryo usually occur?
 - (A) 3 weeks
 - (B) about 6 days
 - (C) 1 day
 - (D) about 3 days
5. Which bone cells are bone-building cells?
 - (A) osteoclasts
 - (B) osteogenic cells
 - (C) osteocytes
 - (D) osteoblasts
6. Supporting cells in nervous tissue are called:
 - (A) neuroglia
 - (B) neurons
 - (C) cadherins
 - (D) mesenchyme

7. A sprinter would experience muscle fatigue sooner than a marathon runner due to
- (A) anaerobic metabolism in the muscles of the sprinter
 - (B) anaerobic metabolism in the muscles of the marathon runner
 - (C) aerobic metabolism in the muscles of the sprinter
 - (D) glycolysis in the muscles of the marathon runner
8. Collared, flagellated cells that cover large parts of the inner chambers of sponges, helping water circulation to continue are
- (A) Porocytes
 - (B) Choanocytes
 - (C) Amoebocytes
 - (D) Pinacocytes
9. The coral species that build reefs are known as
- (A) soft corals
 - (B) hermatypic
 - (C) A and B
 - (D) polyps
10. Rhabdites are present in the cells of the epidermis in
- (A) Cestoda
 - (B) Trematoda
 - (C) Turbellaria
 - (D) None of the above
11. Syncytial epidermis is the characteristic feature of which of the following organism?
- (A) *Ascaris*
 - (B) *Taenia*
 - (C) *Nereis*
 - (D) *Prionospio*
12. Biodiversity is observed to
- (A) increase towards the equator
 - (B) decrease towards the equator
 - (C) remain unchanged
 - (D) fluctuate drastically along latitudes

13. Which of the following is correct for r-selected species?
- (A) small number of progeny with small size
 - (B) small number of progeny with large size
 - (C) large number of progeny with small size
 - (D) large number of progeny with large size
14. The Shannon diversity index
- (A) takes into account the number of species living in a habitat and their relative abundance
 - (B) considers only evenness
 - (C) A and B
 - (D) takes into account the number of species living in a habitat
15. Lectins are proteins specific to
- (A) sugars specific to proteins
 - (B) proteins specific to sugars
 - (C) enzymes specific to carbohydrates
 - (D) carbohydrates specific to enzymes
16. Error free repair of double stranded breaks in DNA occurs by
- (A) non homologous end joining
 - (B) base excision repair
 - (C) homologous recombination
 - (D) mismatch repair
17. In eukaryotes mismatch repair mechanism is initiated by
- (A) double strand breaks
 - (B) strand specific nicks
 - (C) acetylated DNA strand
 - (D) methylated DNA strand
18. The molecular basis of MN blood group system in humans is
- (A) difference in the amino acid sequence of glycoporphin
 - (B) difference in the carbohydrate sequence of glycoporphin
 - (C) difference in the folding pattern of glycoporphin
 - (D) None of the above

19. Based on the abundances of species in different communities provided below, indicate which of the following statements is true.

	Sp. A	Sp. B	Sp. C	Sp. D
Community 1:	70	10	10	10
Community 2:	50	50	50	50
Community 3:	30	30	30	30
Community 4:	35	5	5	5

- (A) Community 1 has highest diversity
- (B) All four communities have the same diversity
- (C) Diversity of Community 2 > Community 3 > Community 1 > Community 4
- (D) Diversity of Community 2 = Community 3 > Community 1 = Community 4
20. Wildlife protection Act 1972
- (A) protects endangered species of wild animals and plants
- (B) prevents trade
- (C) allows poaching
- (D) all the above
21. Arribada refers to
- (A) mass nesting of Olive Ridley turtles
- (B) a dance ritual of peacocks
- (C) a movement of dolphins
- (D) none of the above
22. Two mutant animals with white eyes were crossed. All F1 progeny had red eyes. When F1 was selfed it produced progeny with white and red eyes in the ratio 9:7. On the basis of the information provided, which of the following is correct?
- (A) mutations in the parents are allelic
- (B) mutations in the parents are non allelic
- (C) mutations in the parents are linked
- (D) None of the above

23. Antigen antibody reactions detected by a precipitate formation on an Agar gel is
- (A) immunodiffusion assay
 - (B) immunoprecipitation assay
 - (C) immunoaggregation assay
 - (D) none of the above
24. The reactions that lead to the formation of amino acids from the TCA cycle intermediates are
- (A) carboxylation
 - (B) isomerization
 - (C) transamination
 - (D) none of the above
25. Match the following:
- | Group I | Group II |
|-----------------------------|--------------------------------|
| M. Receptor tyrosine kinase | 1. inactivation of G proteins |
| N. cGMP | 2. reception of insulin signal |
| O. GAP | 3. Thyroid hormone |
| P . Nuclear receptor | 4. receptor guanylyl cyclase |
- (A) M-2, N-4, O-1, P-3
(B) M-2, N-4, O-3, P-1
(C) M-1, N-3, O-4, P-2
(D) none of the above
26. Methaemoglobinemia is caused by the drinking of water contaminated with
- (A) Nitrate
 - (B) Potassium
 - (C) Methane
 - (D) Mercury
27. In a chi-square test, what will be the degrees of freedom for a contingency table consisting of 3 rows (variable-1) and 2 columns (variable 2) ?
- (A) 2
 - (B) 3
 - (C) 5
 - (D) 6

28. When ligand-gated ion channels open, ions move through these channels under the influence of the
- (A) electrical field of the membrane potential only
 - (B) concentration gradients of the ions only
 - (C) combined influence of the electrical field of the membrane potential
 - (D) metabolic pumps for the moving ions
29. Neural modulation frequently works via second messengers that activate ____dependent kinases to phosphorylate a protein.
- (A) G protein
 - (B) ion channel
 - (C) cAMP
 - (D) voltage
30. Stem cells that can differentiate into all cell lineages is
- (A) Adult stem cell
 - (B) Embryonic stem cell
 - (C) Progenitor cell
 - (D) Megakaryocyte
31. In regard to the cross-bridge (CB) power stroke, it is true that:
- (A) In concentric contractions, the CB power stroke pulls the actin filament toward the center of the sarcomere, causing sarcomere shortening.
 - (B) In eccentric contractions, the CB power stroke pushes the actin filament away from the centre
 - (C) In isometric contractions, the CB power stroke pulls the actin filament straight down, preventing shortening or lengthening
 - (D) all the above
32. Waldeyer's ring is a
- (A) Primary lymphoid organ
 - (B) Secondary lymphoid organ
 - (C) Tertiary lymphoid organ
 - (D) Gut-associated lymphoid tissue

33. Phylogenetically the oldest antibody is
- (A) IgM
 - (B) IgA
 - (C) IgD
 - (D) IgG
34. Peptide-binding cleft or groove of class II MHC molecules is formed by
- (A) $\alpha 1$ and $\alpha 2$ domains
 - (B) $\alpha 1$ and $\beta 1$ domains
 - (C) $\beta 1$ and $\beta 2$ domains
 - (D) $\beta 2$ -microglobulin and $\alpha 1$
35. The decrease in response to repeated or continuous stimulation is called
- (A) Instinct
 - (B) Maturation
 - (C) Habituation
 - (D) Imprinting
36. The interaction in which an individual gives up or sacrifices some of its own reproductive potential to benefit another individual is called
- (A) agnostic
 - (B) Territory
 - (C) Hierarchy
 - (D) Altruism
37. A biological cycle, or rhythm, that is approximately 24 hours long is called
- (A) infradian
 - (B) circadian
 - (C) circannual
 - (D) ultradian

38. EDTA prevents cell adhesion by binding to ions of
- (A) magnesium
 - (B) iron
 - (C) carbon
 - (D) calcium
39. The process of dedifferentiation in cell culture can give rise to
- (A) induced-pluripotent stem cells
 - (B) carcinoma cells
 - (C) single protoplasts
 - (D) fused protoplasts
40. In which type of signaling, the cell that expresses messenger molecules also produces receptors?
- (A) autocrine
 - (B) heterocrine
 - (C) paracrine
 - (D) endocrine
41. Steroids are derived from
- (A) estrogen
 - (B) cholesterol
 - (C) proteins
 - (D) carbohydrates
42. Seminal plasma in human males is rich in
- (A) fructose and calcium
 - (B) calcium
 - (C) phosphate
 - (D) None of the above

43. Which of the following is not an accessory respiratory organ in fishes?
- (A) Pectoral fins
 - (B) Pelvic fins
 - (C) Skin or integument
 - (D) Gut epithelium.
44. The process of old crust being pulled down and remelted is
- (A) sea floor spreading
 - (B) drifting
 - (C) plate tectonics
 - (D) subduction
45. Wegener's evidence for his theory of continental drift?
- (A) no evidence
 - (B) recognized that plant and animal fossils, besides rock layers, matched on the two continents of Africa and South America
 - (C) believed continents moved apart
 - (D) none of the above
46. Approximately what percentage of the world's bird species migrate?
- (A) 40%
 - (B) 1%
 - (C) 100%
 - (D) 4%
47. When using tracking devices, as a rule of thumb what percentage of the bird's body mass should the device weigh?
- (A) 42%
 - (B) 3%
 - (C) 10%
 - (D) 12%

48. Which of the following reaction is catalyzed by Lyase?
- (A) Breaking of bonds
 - (B) Formation of bonds
 - (C) Intramolecular rearrangement of bonds
 - (D) A Transfer of group from one molecule to another
49. Which of the following is a shared characteristic of all chordates?
- (A) scales
 - (B) jaws
 - (C) vertebrae
 - (D) dorsal, hollow nerve cord
50. Chordate pharyngeal slits appear to have functioned first as
- (A) the digestive system's opening
 - (B) suspension-feeding devices
 - (C) components of the jaw
 - (D) gill slits for respiration
51. Which of these is not an example for stereo specificity?
- (A) L-lactate dehydrogenase will act only on L-lactic acid, and not D-lactic acid
 - (B) D-glucose oxidase acting only on D-glucose and not L-glucose
 - (C) L-amino oxidase acts only on L-amino acids and not D-aminoacids
 - (D) Hexokinase phosphorylating one or more kind of hexoses
52. The Frank-Starling law of the heart
- (A) is explained by the length-tension relationship of sarcomeres with the conclusion that cardiac fibers are shorter than-optimal in length
 - (B) states that an increase in cardiac output requires an increase in heart rate and stroke volume
 - (C) states that an increase in venous return has a positive effect on SV and CO
 - (D) only A and C are correct

53. Who proposed the theory on the cause of the K-T Extinction?
- (A) Alan Gr
 - (B) Bob Bakker
 - (C) Luis Alvarez
 - (D) Albert Einstein
54. Huxley explained origin of man in his book _____
- (A) the man's place in world
 - (B) the man's place in earth
 - (C) the man's place in nature
 - (D) the man's place in universe
55. In Northern hybridization probe hybridization forms
- (A) DNA:DNA hybrid
 - (B) RNA:DNA hybrid
 - (C) both A and B
 - (D) none of these
56. Which ONE of the following neurotransmitters would you expect to find in the synapse during fast inhibitory synaptic transmission?
- (A) GABA
 - (B) Acetylcholine
 - (C) Noradrenaline
 - (D) Glutamate
57. What is largely responsible for the negative resting membrane potential (around -70 mV) in a neuron?
- (A) Axonal insulation by Schwann cells
 - (B) Voltage-gated sodium channels opening
 - (C) The action potential
 - (D) Potassium leak currents

58. A couple can be assisted to have a child through GIFT. The full form of this technique is
- (A) Gamete Inseminated Fallopian Transfer
 - (B) Gamete Intra Fallopian Transfer
 - (C) Gamete Internal Fertilization and Transfer
 - (D) Germ Cell Internal Fallopian Transfer
59. Which of the following is not a marine fish?
- (A) Hilsa
 - (B) Pomfret
 - (C) Mackerel
 - (D) Carp
60. Bandipur Sanctuary is located in
- (A) Himachal Pradesh
 - (B) Karnataka
 - (C) Odisha
 - (D) Madhya Pradesh
61. Which of the following is not the characteristic feature of Tassar silk?
- (A) Also known as Kosa silk
 - (B) Obtained from *Bombyx mori*
 - (C) A native of India and China
 - (D) Larvae of the silkworm feed on oak
62. Which of the following insects are called Scavengers?
- (A) *Musca domestica*
 - (B) *Solenopsis* spp
 - (C) *Periplaneta americana*
 - (D) All of these

63. Salinity of the world's oceans fall within
- (A) 33-38 PSU
 - (B) 100 PSU
 - (C) 50 PSU
 - (D) 16 PSU
64. The vitamin needed to prevent Spina Bifida
- (A) Folate
 - (B) A
 - (C) C
 - (D) All the above
65. Cholera is caused through ?
- (A) contaminated water
 - (B) cough droplets from the infected person
 - (C) bite of female culex mosquito
 - (D) None of the above
66. HIV initially infects cells expressing
- (A) CD1
 - (B) CCR5
 - (C) CD8
 - (D) CD36
67. Pathogen which typically causes immune deficiency and increases the risk of secondary infection is
- (A) Measles virus
 - (B) Toxoplasma
 - (C) Candida albicans
 - (D) Rabies virus

68. Which of the following species of the honey bee is not found in India?
- (A) *Apis mellifera*
 - (B) *Apis dorsata*
 - (C) *Apis indica*
 - (D) *Apis florea*
69. Which vaccine is not including in Indradhanush mission?
- (A) Tuberculosis
 - (B) Measles
 - (C) Meningococcal meningitis
 - (D) Diphtheria
70. WHO funds which programme in India?
- (A) RNTCP
 - (B) National Leprosy Eradication Programme
 - (C) Janani Suraksha Yojana
 - (D) All the above

ROUGH WORK