COMMON P.G. ENTRANCE TEST – 2021 (CPET-2021)

Test Booklet No.: 182561

HIGHER EDUCATION DEPARTMENT, GOVT. OF ODISHA

TEST BOOKLET

Subject Code : **47** Entrance Subject : **ZOOLOGY**

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 Answer Sheet as well as fill up Test Booklet Serial No. & Answer Sheet Serial No. in the Attendance Sheet carefully. Wrongly filled up 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.

P.T.O.

1. Free-living protozoans tend to consume

(A) Animal debris

(B) Plant debris

(C) Bacteria and other protozoa

(D) All the above

2. Kappa particles are found in:

(A) Trypanosoma

(B) Trichomonas

(C) Paramecium

(D) Ephelota

3. Gametogony in Plasmodium occurs in:

(A) Erythrocytes of humans

(B) Liver of humans

(C) Stomach of female Culex

(D) Sporozoite

4. Which one of the following parasites invades the cerebrospinal fluid?

(A) Leishmania

(B) Plasmodium

(C) Trypanosoma

(D) Ancylostoma

5. Spongocoel is lined with:

(A) Choanocytes

(B) Pinacocytes

(C) Nematocytes

(D) Mycocytes

6. Parenchymula larval form is found in

(A) Porifera

(B) Coelenterata

(C) Nematoda

(D) Annelida

7. Which one of the following is not a medusoid zooid?

(A) Gonozooid

(B) Gonophores

(C) Nectozooid

(D) Phyllozooid

8. In which one of the following parasites are cilia, sense organs and digestive system absent?

(A) Tapeworms

(B) Liver flukes

(C) Ascaris

(D) Ancylostoma

9. Roundworms differ from flatworms in having:

(A) Flame cells

(B) Triploblastic body

(C) Pseudocoel and syncytial epidermis

(D) Arrangement of muscle layers and pseudocoel

10. Clitellum of earthworms is found in:

(A) 14th–16th segments

(B) 16th–18th segments

(C) 17th–19th segments

(D) 10th–12th segments

11. Excretory organ of Arthropods is:

(A) Malpighian tubules

(B) Green glands

(C) Coxal glands

(D) All the above

12. Match column I with column II and select the correct answer using answer codes:

	Column I		Column II
(A)	Glochidium	1.	Amphitretus
(B)	Ovotestis	2.	Argonauta
(C)	Sexual dimorphism	3.	Freshwater snails
(D)	Arms are united by web	4.	Byssus gland

Answer codes:

	A	B	C	D
(A)	4	1	2	3
(B)	3	2	4	3
(C)	2	4	3	1
(D)	4	3	2	1

13. Tube feet without suckers are found in members of the class:

(A) Asteroidea

(B) Echinoidea

(C) Holothuroidea and crinoidea

(D) Ophiuroidea

14. Which one of the following is a correct match?

(A) Tiedmann's bodies – Echinodermata

(B) Enterocoelic coelom – Mollusca

(C) Antedon – Ophiuroidea

(D) Respiratory trees – Metacrinus

15. Ascidiacea, larvacea and thaliacea can be differentiated on the basis of:

(A) Solitary or colonial habit

(B) Number of pharyngeal gill slits

(C) Nature of metamorphosis and organisation of tunic

(D) All the above

16. Which one of the following is not applicable to Petromyzoan?

(A) Buccal funnel

(B) Slime glands

(C) Pancreas

(D) Branchial basket

17. Which one of the following is a true fish?

(A) Sea cow

(B) Sea pen

(C) Sea horse

(D) Sea cucumber

18. Total neoteny is shown by:

(A) Proteus

(B) Siren

(C) Ambystoma

(D) All the above

19. Mesozoic era is known as the:

(A) Golden age of primitive amphibians

(B) Golden age of chilonians

(C) Golden age of dinosaurs

(D) Golden age of birds

20. What is incorrect about the circulatory system of aves?

(A) Heart is four chambered

(B) Well-developed renal portal system

(C) Sinus venosus and truncus arteriosus are lacking

(D) RBCs are nucleated

21. Who among the following scientist proposed the modern theory of origin of life

(A) Oparin

(B) Haldane

(C) Louis Pasteur

(D) Miller

22. RNA was the first formed biomolecule during the origin of life, is supported by one of the following evidences:

(A) RNA is a short chain

(B) It has ribose sugar

(C) RNA copies from the chain can be formed spontaneously in a protein-free environment

(D) Glycerol derivatives might have been involved in place of ribose in RNA

23. After the evolution of DNA from RNA, the RNA became an agent to decode the stored information and subsequently evolved the

(A) DNA → RNA → Protein path

(B) RNA → DNA → Protein path

(C) DNA → Protein → RNA path

(D) RNA → Protein → DNA path

24. Sudden, discontinuous and heritable change is called:

(A) Variation

(B) Mutation

(C) Inheritance of acquired characters

(D) Natural selection

25. Homologous organs provide evidence of:

(A) Parallel evolution

(B) Divergent evolution

(C) Convergent evolution

(D) None of the above

26. Darwin's finches provided an evidence of evolution, which is:

(A) Paleontological

(B) Embryological

(C) Biochemical

(D) Biogeographical

27. Which one of the following is a living fossil:

(A) *Sphenodon*

(B) Platypus

(C) *Latimeria*

(D) All the above

28. Which one of the following is a connecting link between Annelida and Arthropoda?

(A) *Limulus*

(B) *Peripatus*

(C) *Sacculina*

(D) *Polygordius*

29. Antifreeze proteins are produced both in Arctic and Antarctic fishes. However, the genetic pathways that produce these proteins are different in these fishes. This shows:

(A) Co-evolution

(B) Parallel evolution

(C) Convergent evolution

(D) Divergent evolution

30. Bipedal locomotion was first exhibited by

(A) *Australopithecus*

(B) *Dryopithecus*

(C) *Ramapithecus*

(D) *Pithecanthropus*

31. Which of the following is formed by stratum corneum:

(A) Horns

(B) Hoobs

(C) Nails and claws

(D) All of these

32. The middle value of an ordered array of numbers is the:

(A) Mean

(B) Median

(C) Mode

(D) Standard Deviation

33. Which of the following divides a group of data into four subgroups?

(A) Percentile

(B) Deciles

(C) Mode

(D) Quartiles

34. If the standard deviation of a population is 9, the population variance is:

(A) 3

(B) 9

(C) 27

(D) 81

35. Regarding the lac operon, if lactose is present, which of the following occurs?

(A) Lactose binds to the operator preventing the promoter from attracting RNA polymerase and preventing transcription.

(B) Lactose bind to RNA polymerase, which then binds to the promoter and transcribes the needed genes.

(C) Lactose binds to the repressor, which does not bind to the operator, and RNA polymerase transcribes the needed genes.

(D) Lactose binds to the operon, which attracts RNA polymerase, then transcription of the needed genes occurs.

36. Pribnow box is centered at

(A) +10 position

(B) -10 position

(C) -35 position

(D) +35 position

37. If the ratio of (A+G) / (T+C) in one strand of DNA is 0.70, what is the same ratio in the complementary strand?

(A) 0.70

(B) 1.43

(C) 0.35

(D) 0.30

38. A non-super coiled B-DNA molecule is composed of 4,800 base pairs. How many helical turns are present?

(A) 10

(B) 380

(C) 480

(D) Impossible to determine

39. At what [S] is the velocity (V_0) of an enzyme-catalyzed reaction is 25% of Vmax?

(A) 3/4 K_m

(B) 4 K_m

(C) 1/3 K_m

(D) 1/4 K_m

40. Chose the mismatch

(A) D-Glucose and D-Fructose : Anomer

(B) D-Glucose and D-Mannose : Epimer

(C) α-D-Glucose and β-D-Glucose : Anomer

(D) D-Glucose and L-Glucose :Enantiomer

41. The restriction endonucleases SphI and BbuI both recognize and cut the sequence CGTAC/G, they are

(A) Exonucleases

(B) Isosizomers

(C) Neosizomers

(D) 5' cutters

42. A typical plasmid vector have

(A) Origin of replication

(B) Multiple cloning site

(C) Selectable marker

(D) All of the above

43. DNA synthesis can be measured by estimating the incorporation of radiolabelled nucleotide_____.

(A) Thymine

(B) Guanine

(C) Cytosine

(D) Adenine

44. Which enzyme is used nick translation during DNA replication?

(A) DNA polymerase-I

(B) DNA polymerase-III

(C) DNA ligase

(D) DNA helicase

45. Name the protein that catalyses an ATP dependent process to initiate DNA replication in prokaryotes by interacting at a single site rich in AT nucleotide sequence, where two strands unwind and separate.

(A) DnaG protein

(B) DnaA protein

(C) Single strand binding protein

(D) DNA polymerase

46. The energy cost of incorporating one amino acid into a growing polypeptide chain by aminoacyl-tRNA synthetase including the cost of energy needed to charge a tRNA is_____.

(A) 1 ATP, 1GTP

(B) 2 ATP, 2 GTP

(C) 1ATP+2GTP

(D) 2ATP, 1 GTP

47. Shine-Dalgarno sequence on the mRNA located six to ten bases upstream of the initiation codon of mRNA that identified by the 16S rRNA is a_____.

(A) Uracil-containing nucleotide sequence

(B) Purine-rich nucleotide sequence

(C) Pyrimidine rich nucleotide sequence

(D) None of the above

48. Which mRNA will be translated to a polypeptide chain containing 8 amino acids?

(A) AUGUUAAUAGACGAGUAGCGACGAUGU

(B) AUGAGACGGACUGCAUUCCCAACCUGA

(C) AUGCCCAACCGUUAUUCAUGCUAG

(D) AUGUCGACAGUCUAAAACAGCGGG

49. Chemically, human Follicle Stimulating Hormone (FSH) is a

(A) Steroid

(B) Amino acid derivative

(C) Neurohormone

(D) Glycoprotein

50. After consuming a banana split, which hormones would be expected to increase?

(A) Glucagon

(B) Insulin

(C) FSH

(D) Calcitonin

51. Which of the following hormones would bind to receptors located on the inside of a cell?

(A) Testosterone

(B) Follicle-Stimulating Hormone

(C) Prolactin

(D) Growth Hormone

52. Which of the following accurately describes thyroid hormone?

(A) Binds to receptors on the inside of the cell

(B) Released from the anterior pituitary

(C) Derived from cholesterol

(D) Binds to receptors on the outside of the cell

53. In meiosis, recombination occurs in:

(A) Metaphase I

(B) Prophase I

(C) Metaphase II

(D) Prophase II.

54. Which of the following is an example of monosomy?

(A) 46,XX

(B) 47,XXX

(C) 69,XYY

(D) 45,X

55. Which of the following karyotypes is not compatible with survival to birth?

a) 47,XY,+13

b) 47,XX,+18

c) 47,XY,+21

d) 45,Y

56. Consanguinity shows a strong association with which pattern of inheritance?

(A) Autosomal dominant

(B) Autosomal recessive

(C) X-linked dominant

(D) X-linked recessive

57. Which of the following is your best estimate for a population of animals if you first capture 25 animals, mark them, and then release them and a week later you capture 33 animals and find 5 are marked?

(A) 7

(B) 38

(C) 63

(D) 165

58. An area in Similipal was recently destroyed by a raging wildfire. Which of the following events would allow secondary succession to take place?

(A) Animals that survive migrate to surrounding areas.

(B) Plant life that survived begins to die out as a result of the lack of available nutrients.

(C) The dead bodies of animals that did not survive the fire return nutrients to the soil.

(D) Omnivores that survive create a decline of both the herbivore and carnivore population.

59. How an organism is suited to live in a particular place is called:

(A) Competition

(B) Adaptation

(C) Addition

(D) Participation

60. 'Biodiversity' is described as:

(A) The range of different species in an environment

(B) The seasonal and daily changes in an environment

(C) The way species differ from one another

(D) The influence of physical factors on an environment

61. The arrows in a food chain show:

(A) Who eats who

(B) The route of food to the shops

(C) The movement of energy between organisms

(D) Heat energy being lost

62. All the energy in a food chain originates from:

(A) A plant

(B) Farmers

(C) The Sun

(D) An electric outlet

63. Abiotic factors affect an ecosystem and include all of these except the

(A) quantity and quality of water

(B) nitrogen-fixing bacteria

(C) amount of light available

(D) quantity of minerals

64. Many pesticides are stored in an animal's body fat. If a pesticide got into a lake, which organism would have the highest level?

(A) Eagle

(B) Fish

(C) Microscopic animals

(D) Microscopic plants

65. The biggest impacts are made on the environment by:

(A) The migration of organisms

(B) Predation

(C) Human interference

(D) Competition

66. Glycolysis

(A) does not occur in the absence of O2.

(B) does not occur in the presence of O2.

(C) may result in the formation of two moles of lactate for each mole of glucose.

(D) Both (A) and (C)

67. For an action potential to occur,

(A) the stimulus must reach or exceed threshold.

(B) Na+ influx must exceed K+ efflux.

(C) the membrane must be out of the relative refractory period.

(D) Both (A) and (B).

68. Thick filaments in skeletal muscle are composed of

(A) actin.

(B) myosin.

(C) troponin.

(D) tropomyosin.

69. "Motor unit" refers to

(A) a single motor neuron plus all the muscle fibres it innervates.

(B) a single muscle fibre plus all of the motor neurons that innervate it.

(C) all of the motor neurons supplying a single muscle.

(D) a pair of antagonistic muscles.

70. Which of the following organelles is considered as the part of cellular endomembrane system?

(A) Mitochondria

(B) Vacuole

(C) Lysosome

(D) Endoplasmic reticulum

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