COMMON P. G. ENTRANCE TEST – 2020

Test Booklet No. :

DEPT. OF HIGHER EDUCATION, GOVT. OF ODISHA

TEST BOOKLET

Subject Code **47** **Subject** **ZOOLOGY**

Time Allowed : ***90*** *Minutes* *Full Marks :* ***70***

: INSTRUCTIONS TO CANDIDATES :

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. You have to enter your **Hall Ticket No.** on the Test Booklet in the Box provided alongside. **DO NOT** write *anything else* on the Test Booklet.
3. **YOU ARE REQUIRED TO 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 AT THE RISK OF THE CANDIDATE.**
4. **This Test Booklet contains 70 items (questions). Each item (question) comprises four responses (answers). You have to select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer), you should mark (darken) the response (answer) which you consider the best. In any case, choose ONLY ONE response (answer) for each item (question).**
5. You have to mark (darken) all your responses (answers) **ONLY** on the **separate Answer Sheet** provided by **using BALL POINT PEN (BLUE OR BLACK)**. See instructions in the Answer Sheet.
6. All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet. **There is no negative marking**.
7. **After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the *Answer Sheet* issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the Test Booklet, after completion of the examination, for your reference.**
8. Sheets for rough work are appended in the Test Booklet at the end.

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

1. Amoebic dysentery is caused by :
   (A) **Amoeba proteus**
   (B) **Entamoeba histolytica**
   (C) **Plasmodium vivax**
   (D) **Taenia solium**

2. Ecdysone is :
   (A) BH
   (B) PTTH
   (C) PGH
   (D) JH

3. In sponges, the cells surrounding the osculum is :
   (A) Archaeocytes
   (B) Myocytes
   (C) Choanocytes
   (D) Gland cells

4. Conchology is the study of :
   (A) Coelenterate
   (B) Mollusca
   (C) Shell of mollusca
   (D) Mentle of mollusca

5. Syncytial epidermis is found in :
   (A) Hydra
   (B) Ascaris
   (C) Earthworm
   (D) Starfish

6. Aristotle's lantern present in :
   (A) Sea lillies
   (B) Sea cucumber
   (C) Sea urchin
   (D) Sea pea

7. In earthworm, the ovary is situated in the :
   (A) 10^{th} segment
   (B) 13^{th} segment
   (C) 11^{th} segment
   (D) 14^{th} segment

8. In cephalochordates, gill slits open into :
   (A) Pharynx
   (B) Atrium
   (C) Coelom
   (D) Heart

9. Mammal like reptiles belongs to :
   (A) Anapsid line of evolution
   (B) Euryapsid line
   (C) Parapsid line
   (D) Synapsid line

10. The fossil record of Archaeopteryx have been discovered from :
   (A) Britain
   (B) Germany
   (C) France
   (D) USA

11. Largest living land animals are included in the suborder :
   (A) Perissodactyla
   (B) Artiodactyla
   (C) Probiscidea
   (D) Hyracoidea

12. The driving force of an ecosystem is :
   (A) Biomass
   (B) Producers
   (C) Solar energy
   (D) Carbohydrates in producers

13. The term ecotype was coined by :
    (A) GoteTuresson
    (B) Mc Millan
    (C) Korringa
    (D) Elton

14. The term biocoenosis was proposed by :
    (A) Tansley
    (B) Warming
    (C) Kark Mobius
    (D) None of these

15. Which of the following is not a limiting factor for photosynthesis ?
    (A) Oxygen
    (B) Carbon di oxide
    (C) Chlorophyll
    (D) Light

16. Receptor mediated endocytosis from plasma membrane requires which one of the following coat proteins ?
    (A) Clathrin
    (B) SNARE
    (C) Arrestin
    (D) Glycoprotein

17. The protein that is responsible for the sliding of outer microtubule doublets against one another to produce ciliary binding is :
    (A) Nexin
    (B) Dynein
    (C) Tubulin
    (D) None of these

18. Which of the following protein targeting mechanisms is common for mitochondria and chloroplast organelles ?
    (A) Co- translational
    (B) Post-translational
    (C) Co-translational and post-translational
    (D) **de-novo** protein synthesis

19. Cell cycle is controlled by :
    (A) Proteolysis of cyclin dependent kinase
    (B) Phosphorylation of cyclins
    (C) Dephosphorylation of cyclin
    (D) Proteolysis of cyclins

20. Which of the following biochemical reactions is most commonly utilized by living cells to propagate intracellular signals ?
    (A) Acylation
    (B) Phosphorylation
    (C) Methylation
    (D) Decarboxylation

21. Isotopes used for proving semiconservative replication of DNA are :
    (A) N^{14} and P^{31}
    (B) N^{14} and N^{15}
    (C) N^{14} and C^{14}
    (D) C^{14} and P^{31}

22. In prokaryotes, the lagging primers are removed by :
    (A) 3' to 5' exonuclease
    (B) DNA ligase
    (C) DNA polymerase I
    (D) DNA polymerase III

23. When the human genome draft sequence was released, which of the following observation was least expected ?
    (A) The large amount of repititive DNA
    (B) The size of the total genome
    (C) The size of individual chromosomes
    (D) The small number of protein-coding genes

24. Photoreactivation :
    (A) Repairs dimers in DNA using an endonuclease
    (B) Uses light to activate repair enzymes
    (C) Removes alkylating agents from bases
    (D) Deaminates bases

25. Position effect is the result of :
    (A) Mutations
    (B) Deletions
    (C) Inversions
    (D) Transversions

26. The perineurium is the connective tissue layer :
    (A) Surrounding an entire nerve
    (B) Surrounding individual axons in the CNS
    (C) Surrounding individual axons in the PNS
    (D) Surrounding fascicles of axons in the PNS

27. The most important factor in determining the percent oxygen saturation of haemoglobin is :
    (A) The partial pressure of oxygen
    (B) Acidity
    (C) The partial pressure of carbon dioxide
    (D) Temperature

28. Reabsorption of chloride ions from the glomerular filtrate in the kidney tubule is carried out by :
    (A) Osmosis
    (B) Diffusion
    (C) Active transport
    (D) Brownian movement

29. The gastric gland cell whose absence could lead to pernicious anaemia is the :
    (A) Chief cell
    (B) Goblet cell
    (C) Mucous neck cell
    (D) Parietal cell

30. All the hormones of the adrenal cortex are synthesized from :
    (A) Tyrosine
    (B) Glycoproteins
    (C) Cholesterol
    (D) Fats

31. The primary target organ of aldosterone action is :

(A) Liver

(B) Pancreas

(C) Kidney

(D) Heart

32. The bacteriophage M13 contains as its genetic material :

(A) Single stranded RNA

(B) Double Stranded RNA

(C) Single stranded DNA

(D) Double stranded DNA

33. What is number of hydrogen bonds in B-DNA of 1000 base pairs with the proportion of bases C, A and T in one of the strands corresponding to 60%,30% and 10% respectively ?

(A) 2600

(B) 2400

(C) 2200

(D) 2000

34. In Sanger's method of DNA sequencing, the growing DNA chains are terminated because :

(A) DNA polymerase is not very processive

(B) A radioactive nucleotide is incorporated

(C) The substrates become limiting

(D) A phosphodiester bond cannot be made

35. Glucose and galactose are two isomeric monosaccharides known as :

(A) Anomers

(B) Epimers

(C) Enantiomers

(D) Conformers

36. Assuming they all had the same number of carbon atoms, which of the following has the maximum number of C-H bonds ?

(A) An unsaturated fat

(B) A polyunsaturated fat

(C) A polysaccharide

(D) A saturated fat

37. Which of the following cofactor is essential for the activity of acetyl-CoA carboxylase ?

(A) NAD^+

(B) Biotin

(C) TPP

(D) Vitamin B_6

38. Abzymes are :

(A) Enzymes that are highly specific like antibodies

(B) Antibodies that have catalytic activities

(C) Also referred to as zymogens

(D) Enzymes that hydrolyze antibodies

39. Which of the following statement is true about non-competitive inhibition ?

(A) K_m increases

(B) K_m decreases

(C) V_{max} increases

(D) V_{max} decreases

40. Which of the following compounds is a positive allosteric regulator of the enzyme pyruvate carboxylase ?

(A) Adenosine tri phosphate

(B) Acetyl Coenzyme A

(C) Biotin

(D) Phosphoenolpyruvate

41. p53 protein is associated with all of the following except :

(A) Tumor suppression

(B) Programmed cell death

(C) Transcription

(D) Post translational modifications

42. When heterozygous black pigs are inter crossed then what is the chance of the first two offspring being black ?

(A) 46

(B) 56

(C) 66

(D) 76

43. Toll like receptors (TLRs) play an important role in immune defence by recognising :

(A) Microbial components

(B) Conformational difference in antigenic protein

(C) MHC peptide complexes

(D) Anti idiotypic immunoglobulins

44. The macrophage rich mass found at the site of injection of an adjuvant is called :

(A) Myeloma

(B) Granuloma

(C) Adjuvant activated lymphoma

(D) None of these

45. Major variability of MHC is found in :

(A) Alpha chain

(B) β_2 microglobulins

(C) Amino terminus region

(D) Domains

46. The predominant antibody in saliva is :

(A) IgG

(B) IgA

(C) IgM

(D) IgD

47. Cytokines are not :

(A) Able to induce increased blood vessel permeability

(B) Antigen specific

(C) Made in response to bacterial antigens

(D) Signals from one cell that affects the behaviour of another cell

48. Type I hypersensitivity is known as :
    (A) Anaphylaxis
    (B) Agglutination
    (C) The transfusion reaction
    (D) Contact hypersensitivity

49. In myasthenia gravis blocking antibodies bind to :
    (A) Acetylcholine
    (B) Dopamine
    (C) Acetylcholine receptor
    (D) Axons

50. Which of the following is an epigenetic factor for gene expression in eukaryotes ?
    (A) Recombination
    (B) DNA methylation
    (C) Protein phosphorylation
    (D) DNA protein interaction

51. Which of the following is a post-zygotic-isolating mechanism in speciation ?
    (A) Behavioural isolation
    (B) Seasonal isolation
    (C) Fertilization failure
    (D) Hybrid sterility

52. The phenomenon of genetic drift is most likely to occur in population that are :
    (A) Small and inbred
    (B) Undergoing gene flow
    (C) Allopatric
    (D) Large and panmictic

53. The first vertebrates appeared in which one of the following periods of the Palaeozoic era ?
    (A) Ordovician
    (B) Silurian
    (C) Evonian
    (D) Mississippians

54. Chaperone proteins help in :

(A) Protein folding and assembly

(B) Protein stability

(C) Both (A) and (B)

(D) None of these

55. Deviation from the Hardy-Weinberg assumption of infinitely large population size results in :

(A) Genetic lethal

(B) Heterozygote advantage

(C) Consanguinity

(D) Genetic drift

56. In a population that is in equilibrium, the proportion of individuals showing the dominant trait at a given locus having two allele is 84%. The frequency of the recessive allele in the population is :

(A) 0.40

(B) 0.30

(C) 0.20

(D) 0.16

57. The folding of sheets of cells, the migration of cells and cell death are all mechanisms of :

(A) Cleavage division

(B) Pattern formation

(C) Morphogenesis

(D) Differentiation

58. The process by which developing cells achieve their functional, mature identity as liver or muscle or nerve is called :

(A) Cleavage division

(B) Pattern formation

(C) Morphogenesis

(D) Differentiation

59. Which of the following cell organelle actively participates in animal apoptosis ?

(A) Vacuoles

(B) Chloroplast

(C) Nucleus

(D) Mitochondria

60. A species facing an extremely high risk of extinction in the immediate future is called :

(A) Vulnerable

(B) Rare

(C) Endangered

(D) Link species

61. Which of the following zones in a lake suffers from lack of light and therefore limited photosynthesis is able to take place ?

(A) Littoral

(B) Profoundal

(C) Pelagic

(D) Euphotic

62. In which year Wildlife Protection Act was implemented in India ?

(A) 1952

(B) 1962

(C) 1972

(D) 1982

63. The part of the brain that has been shown to function like a 'Biological clock' is the :

(A) Nucleus of the solitary tract

(B) Suprachiasmatic nucleus

(C) Gigantocellular tegmental field

(D) Optic chiasm

64. Which hormone is secreted by placenta ?

(A) ACTH

(B) Progesterone

(C) GH

(D) Gastrin

65. Identify fish group which excretes urea as the primary nitrogenous end product :
    (A) Teleost fishes
    (B) Lung fishes
    (C) Elasmobranch fishes
    (D) None of these

66. Induced breeding technique is used in :
    (A) Culture fishery
    (B) Marine fishery
    (C) Capture fishery
    (D) Inland fisheries

67. Which of the following is an imino acid ?
    (A) Hystidine
    (B) Glycine
    (C) Cysteine
    (D) Proline

68. Proteins may be separated according to size by :
    (A) Reverse phase chromatography
    (B) Ion exchange chromatography
    (C) Molecular exclusion chromatography
    (D) Isoelectric focussing

69. All of the enzymes of TCA cycle are located in the mitochondrial matrix except :
    (A) Citrate synthatase
    (B) Alpha keto glutarate dehydrogenase
    (C) Succinate dehydrogenase
    (D) Fumarase

70. To be a cloning vector, a plasmid does not require :
    (A) An origin of replication
    (B) An antibiotic resistance marker
    (C) A restriction site
    (D) To have a high copy number

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