

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

**COMBINED COMPETITIVE (PRELIMINARY) EXAMINATION, 2013**

Serial No.

**ZOOLOGY**

**Code No. 22**



*Time Allowed : Two Hours*

*Maximum Marks : 300*

**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. ENCODE CLEARLY THE TEST BOOKLET SERIES **A, B, C OR D** AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE RESPONSE SHEET.
3. You have to enter your Roll Number on this  
Test Booklet in the Box provided alongside.  
*DO NOT* write *anything else* on the Test Booklet.
4. This Booklet contains 120 items (questions). Each item comprises *four* responses (answers). You will select *one* response which you want to mark on the Response 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. In case you find any discrepancy in this test booklet in any question(s) or the Responses, a written representation explaining the details of such alleged discrepancy, be submitted within three days, indicating the Question No(s) and the Test Booklet Series, in which the discrepancy is alleged. Representation not received within time shall not be entertained at all.
6. You have to mark all your responses **ONLY** on the separate Response Sheet provided. *See directions in the Response Sheet.*
7. All items carry equal marks. Attempt **ALL** items. Your total marks will depend only on the number of correct responses marked by you in the Response Sheet.
8. Before you proceed to mark in the Response Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Response Sheet as per instructions sent to you with your Admit Card and Instructions.
9. While writing Centre, Subject and Roll No. on the top of the Response Sheet in appropriate boxes use **“ONLY BALL POINT PEN”**.
10. After you have completed filling in all your responses on the Response Sheet and the examination has concluded, you should hand over to the Invigilator only the Response Sheet. You are permitted to take away with you the Test Booklet.

Your Roll No.

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## ROUGH WORK

1. Fresh water sponge among the following is :  
 (A) Sycon (B) Glass rope sponge  
 (C) Euspongia (D) Spongilla
2. Malarial fever is caused by :  
 (A) Trypanosoma (B) Leishmania  
 (C) Entamoeba (D) Plasmodium
3. Metamerism is first seen in which phylum ?  
 (A) Arthropoda (B) Annelida  
 (C) Mollusca (D) Porifera
4. Which carbohydrate is rich in Honey ?  
 (A) Glucose (B) Galactose  
 (C) Fructose (D) Sucrose
5. Pseudocoelom is found in which of the following organisms ?  
 (A) Hydra (B) Ascaris  
 (C) Ant (D) Tape worm
6. Which among the following is an example for limbless amphibia ?  
 (A) Frog (B) Ichthyophis  
 (C) Hyla (D) Salamandra
7. An example for shell-less Mollusca is :  
 (A) Laligo (B) Sepia  
 (C) Octopus (D) Chiton
8. Beneficial insect among the following is :  
 (A) Locust (B) Spider  
 (C) Apis mellifera (D) Cockroach
9. Which of the following organisms shows very high degree of regeneration ?  
 (A) Spider (B) Crab  
 (C) Starfish (D) House lizard
10. Binomial nomenclature was introduced by :  
 (A) Aristotle (B) De Candole  
 (C) Carolus Linnaeus (D) Mendel
11. The site of lipid digestion in the digestive system is :  
 (A) Liver (B) Buccal Cavity  
 (C) Small Intestine (D) Stomach

12. With respect to enzymes which of the following statements is not correct ?  
 (A) All enzymes are biological in origin  
 (B) They are thermolabile  
 (C) They have a specific substrate on which they act  
 (D) They work in all pH
13. In human heart the oxygenated blood is present in :  
 (A) Right ventricle (B) Left ventricle  
 (C) Right auricle (D) Both Right auricle and Right ventricle
14. The term 'Gene' was coined by :  
 (A) Mendel (B) Morgon  
 (C) Johansson (D) Hugo de Veris
15. Discharge of mature ovum from Graafian follicle is called :  
 (A) Oogenesis (B) Abortion  
 (C) Parturition (D) Ovulation
16. Growth and maturation of Graafian follicle is controlled by which hormones ?  
 (A) Growth hormone and LTH (B) FSH and LH  
 (C) ACTH and prolactin (D) Pitocin and estrogen
17. During the embryonic development, nervous system (brain, spinal chord, nerves) developed from :  
 (A) Endoderm (B) Mesoderm  
 (C) Ectoderm (D) Both Endoderm and Mesoderm
18. The function of 'Sertoli Cells' is :  
 (A) Provide nutrition to sperm (B) Provide energy to sperms  
 (C) Provide hormone to sperm development (D) Provide oxygen to sperms
19. Prototherian mammal among the following is :  
 (A) Duckbilled platypus (B) Kangaroo  
 (C) Bat (D) Dolphin
20. Inheritance of blood groups in human is an example for which type of inheritance ?  
 (A) Polygenic inheritance (B) Multiple allelic inheritance  
 (C) Complementary inheritance (D) Epistasis inheritance
21. The chromosomal complement of Turner syndrome is :  
 (A) 44A + XO (B) 45A + XX  
 (C) 44A + XXY (D) 44A + XYY

22. The diploid chromosome number in *Drosophila melanogaster* is :  
 (A) 6 (B) 8  
 (C) 16 (D) 4
23. Linkage phenomenon was discovered by :  
 (A) Mendel (B) Muller  
 (C) Morgon (D) Sutton and Boveri
24. In which stage of meiosis crossing over takes place ?  
 (A) Leptotene (B) Zygotene  
 (C) Pachytene (D) Metaphase I
25. Which of the following in human is sex linked inheritance disorder ?  
 (A) Phenylketoneuria (B) Sickle cell anaemia  
 (C) Diabetes (D) Colour blindness
26. Select a vestigial organ in man :  
 (A) Ilium (B) Tooth  
 (C) Coccyx (D) Ear pinna
27. Analogous organs are :  
 (A) Structurally, functionally and originally similar  
 (B) Functionally similar but dissimilar structurally  
 (C) Functionally dissimilar but structurally originally similar  
 (D) Functionally, structurally and originally dissimilar
28. Connecting link among the following is :  
 (A) Peripatus (B) Shark  
 (C) Turtle (D) Bat
29. The book 'Philosophie Zoologique' published in 1809 was written by :  
 (A) Charles Darwin (B) Hugo de Veris  
 (C) Earnst Haeckel (D) Lamarck
30. The antiviral substance released by a virally infected cell is called :  
 (A) Histamines (B) Pyrogens  
 (C) Interferons (D) Allergens
31. When a body starts rejecting its own cells/tissue, it is called :  
 (A) Immunodeficiency (B) Immunosuppression  
 (C) Autoimmunity (D) Autografting

32. Non tumors cancer is :  
 (A) Skin cancer (B) Lung cancer  
 (C) Brain tumour (D) Leukemia
33. Confirmatory test used for detection of HIV infection is :  
 (A) ELISA (B) Widal Test  
 (C) Northern Blot (D) Western Blot / Dot Blot
34. The function of helper - T cell is to :  
 (A) Kill the antigen  
 (B) Kill the antibody  
 (C) Suppress B Cells to inhibit antibody production  
 (D) Stimulate B cells to produce antibody
35. Mule is produced by :  
 (A) Crossing horse with zebra (B) Crossing donkey with camel  
 (C) Crossing horse with donkey (D) Crossing camel with horse
36. Murrah, Surti and Meshsana are breeds of :  
 (A) Cattles (B) Pigs  
 (C) Buffaloes (D) Sheep
37. Wax glands of honey bee are present in :  
 (A) Queen bee (B) Male bee  
 (C) Worker bee (D) Drones
38. The main enzymes of biotechnology are :  
 (A) DNA polymerase and RNA polymerase  
 (B) Restriction endonuclease and isomerase  
 (C) Restriction endonuclease and DNA ligase  
 (D) DNA ligase and Reverse transcriptase
39. Deficiency of Vitamin B<sub>12</sub> leads to which disease ?  
 (A) Scurvy (B) Beri beri  
 (C) Pellagra (D) Pernicious anaemia
40. DNA finger printing technique was developed by :  
 (A) Alec Joffreys (B) Ian Wilmut  
 (C) Kar Erey (D) Werner Arber
41. Golden rice was developed to minimise which deficiency ?  
 (A) Protein (B) Carbohydrate  
 (C) Vitamin A (D) Hormone

42. Blood analysis of a patient reveals an unusually high quantity of carboxyhaemoglobin content. The patient has inhaled which of the pollutants ?  
 (A) Carbon dioxide (B) Carbon monoxide  
 (C) Carbon disulphide (D) Chlorofom
43. Sugar present in milk is :  
 (A) Glucose (B) Fructose  
 (C) Lactose (D) Sucrose
44. The function of lacteals in the human small intestine is :  
 (A) Absorption of glucose and vitamins  
 (B) Absorption of amino acids and minerals  
 (C) Absorption of water and ions  
 (D) Absorption of fatty acids and glycerol
45. Nutritional deficiency of essential aminoacids in infants leads to the disease called :  
 (A) Rachites (B) Kwashiorkor disease  
 (C) Anaemia (D) Dermatitis
46. The largest corpuscle in the blood is :  
 (A) Basophil (B) Acidophil  
 (C) Monocyte (D) Lymphocyte
47. Which of the following statements is incorrect ?  
 (A) 'O' blood group person has A and B antibodies in his blood  
 (B) 'AB' blood group person has A and B antigen on the RBC membrane  
 (C) 'A' blood group person has A antigen and B antibody in the blood  
 (D) 'B' blood group person has B antigen and B antibody in the blood
48. The pH of healthy human urine is :  
 (A) 6.5 (B) 7  
 (C) 8 (D) 6
49. Which of the following hormones is called antidiuretic hormone ?  
 (A) Oxytocin (B) Vasopressin  
 (C) Adrenaline (D) Calcitonin
50. The longest bone in the human body is :  
 (A) Humerus (B) Tibia  
 (C) Femur (D) Radio ulna
51. Biogenesis theory of origin of life was proposed by :  
 (A) Aristotle (B) Fransisco Redi  
 (C) J.B.S. Haldane (D) Richter

52. The normal life span of RBC in human body is :  
 (A) 20 days (B) 2 days  
 (C) 120 days (D) 365 days
53. Which enzyme is used in PCR machine ?  
 (A) Reverse transcriptase (B) RNA polymerase  
 (C) RNAase (D) taq polymerase
54. Holothurian echinoderm among the following is :  
 (A) Star fish (B) Brittle star  
 (C) Sea cucumber (D) Sea lilly
55. Unique mammalian character among the following is :  
 (A) Presence of four chambered heart (B) Presence of mammary gland  
 (C) Homoeothermic nature (D) Claws as exoskeleton
56. An example for fresh water coelenterate is :  
 (A) Aurelia (B) Hydra  
 (C) Pennatula (D) Metridium
57. Elephantosis disease is caused by which pathogen ?  
 (A) Ascaris (B) Dracanculus  
 (C) Tape worm (D) Filarial worm
58. Which of the following is an endangered mammal ?  
 (A) Antelope (B) One horned Rhinocoerous  
 (C) Wolf (D) Spotted Deer
59. Indian Hot spots of biodiversity are :  
 (A) Eastern Ghats and Sundarbans (B) Western Ghats and Sahara  
 (C) Eastern Himalaya and Western Ghat (D) Western Ghat and Kolleru Lake
60. Among the following which one is global warming gas ?  
 (A) Oxygen (B) Nitrogen  
 (C) Methane (D) Hydrogen
61. Which of the following is a viviparous animal ?  
 (A) Sea urchin (B) Turtle  
 (C) Scorpion (D) Pigeon
62. The end product of glycolysis is :  
 (A) Acetyl coenzyme A (B) Citric Acid  
 (C) Pyruvic acid (D) Oxalloacetic acid



63. Which of the following is a back cross ?  
 (A)  $TT \times tt$  (B)  $Tt \times Tt$   
 (C)  $Tt \times tT$  (D)  $Tt \times tt$
64. Which of the following is called the 'Energy Currency' in biological system ?  
 (A) Glucose (B) NADP  
 (C) ATP (D)  $FADH_2$
65. Notochord is derived from :  
 (A) Ectoderm (B) Endoderm  
 (C) Epiderm (D) Chordamesoderm
66. Which of the following is a good dietary guideline for Diabetes ?  
 (A) Egg and meat (B) Starchy grain foods  
 (C) Sweets (D) Fibre rich food or Fish
67. Which egg shows meroblastic discoidal cleavage ?  
 (A) Frog's egg (B) Mammalian egg  
 (C) Sea urchin egg (D) Chick egg
68. Marsupial mammals belong to :  
 (A) Prototheria (B) Eutheria  
 (C) Metatheria (D) Ratitae
69. Which of the following is not a primary lymphoid organ ?  
 (A) Bone marrow (B) Thymus  
 (C) Spleen (D) Tonsil
70. Mitochondria are found in all types of cells in human except :  
 (A) Adipocytes (B) Red Blood corpuscles  
 (C) Hepatocytes (D) Nerve cells
71. Iodine test is a conformational test for which carbohydrate ?  
 (A) Glucose (B) Sucrose  
 (C) Starch (D) Fructose
72. 'Induced Fit' theory of enzyme action was proposed by :  
 (A) Sanger (B) Michaelis Menton  
 (C) Emil Fisher (D) Koshland
73. The separation of paired homologous chromosomes takes place in which of the following sub-stage of meiosis ?  
 (A) Diakinesis (B) Anaphase II  
 (C) Metaphase I (D) Anaphase I

74. Which of the following is not true with respect to cancer ?  
 (A) They are immortal (B) They show metastasis  
 (C) They do not divide (D) They show innovaciveness
75. Select an odd animal among the following :  
 (A) Snake, Lizard, Turtle (B) Frog, Toad, Earthworm  
 (C) Crow, Pigeon, Parrot (D) Horse, Donkey, Camel
76. Which of the following characters is unique to Aves ?  
 (A) Ureotellic animals (B) Aerial mode of life  
 (C) Pneumatic bones (D) Four chambered heart
77. Law of independent assortment takes place when there is no :  
 (A) Crossing over (B) Recombination  
 (C) Linkage (D) Mutation
78. The total number of bones in human body is :  
 (A) 206 (B) 230  
 (C) 208 (D) 210
79. In an early embryonic stage RBC's are produced in :  
 (A) Bone Marrow (B) Spleen  
 (C) Liver (D) Thymus
80. Which antibody passes through placenta to embryo and gives protection to embryo ?  
 (A) Ig G (B) Ig M  
 (C) Ig A (D) Ig E
81. During allergic condition, which of the WBC count in the body increases ?  
 (A) Monocytes (B) Eosinophils  
 (C) Dasophils (D) Neutrophils
82. Theory of pangenesis was proposed by :  
 (A) Decandole (B) Charles Darwin  
 (C) Dobzhansky (D) Seawall Wright
83. Silk thread is made up of :  
 (A) Cellulose and hemicellulose (B) Serein and Fibrin  
 (C) Serein and Fibrinogen (D) Actin and Fibrin
84. Hardest substance in the human body is :  
 (A) Bone (B) Tendon  
 (C) Enamel (D) Skull

85. Which one is called biological cement ?  
 (A) Muscle (B) Connective tissue  
 (C) Epidermis (D) Ligament
86. Essential amino acids are among the following :  
 (A) Tyrosine and Proline (B) Threonine and Valine  
 (C) Cystine and Cystiene (D) Proline and Glycine
87. Anti coagulant among the following is :  
 (A) Hyaluronidase (B) Heparin  
 (C) Heptulin (D) Prothrombin
88. Many shelled mollusca among the following is :  
 (A) Dentalium (B) Xancus  
 (C) Chiton (D) Nautilus
89. During child birth, the uterine muscle contraction is initiated by which hormone ?  
 (A) Progesterone (B) Human chorionic gonadotrophin  
 (C) Oxytosin (D) Vasopressin
90. Which hormone is called Hyperglycemic hormone ?  
 (A) Insulin (B) Glucagon  
 (C) Growth hormone (D) Testosterone
91. Induced mutation using X-rays was first reported by :  
 (A) Bateson (B) Punette  
 (C) Muller (D) Stebbins
92. Pleiotropy genes are genes which :  
 (A) Show only one phenotype  
 (B) Show two phenotypes  
 (C) Control several unrelated phenotypic characters  
 (D) Show multiple genotypes
93. Human genome contains how many nucleotides ?  
 (A) 6 million nucleotides (B) 6 Billion nucleotides  
 (C) 30,000 nucleotides (D) 3 Billion nucleotides
94. Hybridoma technique is mainly done for the production of :  
 (A) monoclonal antibody (B) cancer drug  
 (C) insulin (D) vitamin

95. Which of the following is not a genetic vector ?  
 (A) Plasmid (B) Cosmid  
 (C) Phage (D) Mitochondria
96. 'Industrial Melanism' in peppered moth was first reported by the scientist :  
 (A) Kettlewell (B) Seawall Wright  
 (C) Haldane (D) Dobzhansky
97. An association of sea anemone with hermit crab living in a gastropod shell is an example for :  
 (A) Proto Cooperation (B) Mutualism  
 (C) Parasitism (D) Amensalism
98. Which soil is best suited for plant growth ?  
 (A) Loamy (B) Sandy  
 (C) Clayey (D) Gravel
99. The chemical responsible for Bhopal gas tragedy is :  
 (A) Methane (B) Butane  
 (C) Methyl Isocyanate (D) D.D.T.
100. Smog is a combination of :  
 (A) Water and fire (B) Smoke and fog  
 (C) Water and smoke (D) Air and water
101. Which of the following is not a locomotory structure in the phylum annelida ?  
 (A) Setae (B) Sucker  
 (C) Chaete (D) Pseudopodia
102. Free living Platyhelmenthes is :  
 (A) Planaria (B) Tape worm  
 (C) Pin worm (D) Guinea worm
103. Ovo viviparous is seen in which organism ?  
 (A) Echidna (B) Duck  
 (C) Rabbit (D) Kangaroo
104. 'Cry du chat' syndrome in human is because of :  
 (A) Partial deletion of 5<sup>th</sup> chromosome (B) Extra X chromosome  
 (C) Trisomy 21 chromosome (D) Loss of X chromosome
105. Carbon dioxide content in the atmosphere is :  
 (A) 3% (B) 0.03%  
 (C) 0.3% (D) 21%

106. An example for cetacian mammal is :

- (A) Dolphin
- (B) Bat
- (C) Shark
- (D) Otter

107. Which of the following is a unique structure of the phylum Echinodermata ?

- (A) Radial Symmetry
- (B) Canal system
- (C) Regeneration
- (D) Water vascular system

108. An example for Tunicate among the following is :

- (A) Ascidia
- (B) Amphioxus
- (C) Balanoglossus
- (D) Myxine

109. Which of the following is a poisonous snake ?

- (A) Rat snake
- (B) Green snake
- (C) Rattle snake
- (D) Blind snake

110. The dental formula of human is :

- (A)  $\frac{2 \ 1 \ 2 \ 3}{2 \ 1 \ 2 \ 3}$
- (B)  $\frac{2 \ 2 \ 3 \ 2}{2 \ 2 \ 3 \ 2}$
- (C)  $\frac{1 \ 2 \ 2 \ 3}{1 \ 2 \ 2 \ 3}$
- (D)  $\frac{3 \ 1 \ 3 \ 2}{3 \ 1 \ 3 \ 2}$

111. In coelenterate medusoid form is :

- (A) Free living and sexual reproductive body
- (B) Sessile and asexual reproduction
- (C) Sedentary and reproduce sexually
- (D) Free living and reproduce asexually

112. The optimum pH for pancreatic lipase action is :

- (A) pH 2 – 3.2
- (B) pH 6
- (C) pH 7.4 – 8.4
- (D) pH 10

113. Grave yard of RBC is :

- (A) Liver
- (B) Spleen
- (C) Thymus
- (D) Bone marrow

114. Protostomes means :

- (A) Embryonic blastopore develops into mouth
- (B) Embryonic blastopore develops into anus
- (C) Blastocoel develops into mouth
- (D) Blastocoel develops into brain

115. Enterocoelic organism among the following is :

- (A) Earthworm
- (B) Frog
- (C) Ascaris
- (D) Tapeworm

116. Giant reptiles flourished well during which era and period ?

- (A) Protozoic era and Jurassic period
- (B) Coenozoic era and Cambrian period
- (C) Mesozoic era and Jurassic period
- (D) Mesozoic era and Silurian period

117. Which of the following is not an important postulate of Darwinian theory of evolution ?

- (A) Prodigality of nature
- (B) Struggle for existence
- (C) Survival of the fittest
- (D) Genetic variation

118. Tiger and Panther live in the same forest and compete for same food. This type of competition is called :

- (A) Intraspecific competition
- (B) Interspecific competition
- (C) Mutualism
- (D) Canabolism

119. In DNA, if the percentage of Adenine is 22%. Then what would be the percentage of guanine ?

- (A) 22%
- (B) 44%
- (C) 28%
- (D) 11%

120. Which organism Darwin called “nature’s unpaid labour force” ?

- (A) Cattle
- (B) Honey bee
- (C) Earthworm
- (D) Frog

## **ROUGH WORK**

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