

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

**COMBINED COMPETITIVE (PRELIMINARY) EXAMINATION, 2012**

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.
- Your Roll No. \_\_\_\_\_
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.

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**ROUGH WORK**

1. Enterogastrone is secreted by :  
(A) Ileum (B) Stomach  
(C) Oesophagus (D) Duodenum
  
2. Extinct bird among the following, identify it :  
(A) Falcon (B) Vulture  
(C) Ichthyornis (D) Eagle
  
3. Which of the statement is correct ?  
(A) Emil Fischer proposed the theory of competitive inhibition  
(B) An allosteric substance influences the enzyme activity by changing its specificity to substrate  
(C) The active site of an enzyme is formed by R groups of amino acids  
(D) Non-competitive inhibitor in that it reduces the affinity of substrate for enzymes
  
4. "Silent Spring" is written by lady author which is first of its kind on Environmental degradation, identify the author :  
(A) Kipling (B) Waldeyer  
(C) Brown (D) Carson
  
5. The excretory product of cartilaginous fishes, adult amphibia and mammals is :  
(A) Uric acid (B) Ammonia  
(C) Ammonia and Uric acid (D) Urea
  
6. Tasar silk worm feeds on :  
(A) Mulberry leaves (B) Oak leaves  
(C) Castor leaves (D) Mango leaves
  
7. Free living platyhelminthes belong to :  
(A) Turbellaria (B) Trematoda  
(C) Cestoda (D) Phasmida
  
8. Which one of the following represent humoral immunity ?  
(A) Phagocytosis (B) Melanization  
(C) Antibody production (D) Lysozyme secretion

9. In a double helix of DNA each base pair is how distant from the next base pair ?  
(A) 0.34 nm (B) 3.4 nm  
(C) 24 nm (D) 34 nm
10. The animal which shows “knotting” behaviour along with secretion of mucus to free itself from the grip is :  
(A) Pristis (B) Hagfish  
(C) Torpedo (D) Chimaera
11. “Kappa particles” are discovered by :  
(A) Sonneborn (B) Hyman  
(C) Giese (D) Parker
12. Honey bee dance as language of communication and its decoding was done by :  
(A) Brown (B) Haswel  
(C) Frisch (D) Waldeyer
13. DNA finger printing technique is developed by :  
(A) Khorana (B) Lalji Singh  
(C) Alec Jafferys (D) Avers
14. 5SrRNA is transcribed :  
(A) In nucleus (B) In nucleoplasm without nucleolar organizer  
(C) In cytoplasm (D) In association with nucleolar organizer
15. Identify the rodenticide from the following :  
(A) Warfarin (B) Malathion  
(C) Benzene hexachloride (D) Endosulfan
16. Foramen of panizza is found in the heart of :  
(A) Crocodiles (B) Squamates  
(C) Chelonia (D) All reptiles
17. Humans are born with :  
(A) 300 to 380 bones (B) 200 to 270 bones  
(C) 100 to 170 bones (D) 360 to 400 bones

18. Microtubules perform the function of :  
(A) Control of cellular shape (B) Participation in movement  
(C) Transport of materials (D) (A), (B) and (C)
19. The sequence of eating and being eaten up is called :  
(A) Food web (B) Energy flow  
(C) Food chain (D) Food pyramid
20. The number of ATP produced at the level of Succinic dehydrogenase are :  
(A) 3 (B) 2  
(C) 6 (D) 4
21. Ectoderm does not give rise to :  
(A) Mouth (B) Epidermis  
(C) Cerebral hemispheres (D) Gonads
22. Limnology is the study of :  
(A) Fresh Water Ecology (B) Desert Ecology  
(C) Land Ecology (D) Grassland Ecology
23. Pebrine is the disease related to :  
(A) Lac insects (B) Silkworm  
(C) Honey bee (D) Mites
24. The idea that "General characters appear first, then appear the special character" is given by :  
(A) Von Baer (B) Haeckel  
(C) Gilbert (D) Haldane
25. Holoblastic spiral cleavage is found in :  
(A) Frog (B) Man  
(C) Hydra (D) Lymnea
26. A pair of contrasting characters is termed as :  
(A) Allelomorphs (B) Homozygous  
(C) Heterozygous (D) Polymorphs

27. Antifertilizin is secreted by :
- (A) Ovum (B) Spermatozoa  
(C) Sertoli cells (D) Glial cells
28. Sinus arrhythmia is :
- (A) Increased heart rate during expiration  
(B) Decreased heart rate during inspiration  
(C) Increased heart rate during inspiration  
(D) None of the above
29. Which one of the following is not reabsorbed from the filtrate to the blood in the proximal tubule ?
- (A)  $\text{Na}^+$  (B) Glucose  
(C) Water (D) Plasma Proteins
30. An example of Tautonym is :
- (A) *Ameoba Proteus* (B) *Musca domestica*  
(C) *Homo Sapiens* (D) *Naja naja naja*
31. Flightless birds are included in :
- (A) Carinatae (B) Ratitae  
(C) Impennae (D) Odontognathae
32. "Ouch Ouch" disease, a pollutional disorder is caused due to :
- (A) Mercury (B) Selenium  
(C) Cobalt (D) Cadmium
33. During hibernation and aestivation, frog lives upon :
- (A) Stored glucose and fat (B) Stored glycogen and fat  
(C) Stored starch and fat (D) Stored galactose and fat
34. Atavism is :
- (A) reappearance of forgotten characters (B) loss of adult characters  
(C) loss of larval characters (D) disappearance of phylogenetic characters

35. During gastrulation epithelial cells may spread across the outer surface as a unit, it is called :  
(A) Involution (B) Epiboly  
(C) Invagination (D) Ingression
36. Reproductive symbiosis is represented by :  
(A) Unio and Rhodeus (B) Unio and Obelia  
(C) Hydra and Chlorella (D) Porpita and Sycon
37. Which vitamin contributes to coenzyme of FAD ?  
(A) Vitamin B<sub>12</sub> (B) Vitamin B<sub>5</sub>  
(C) Vitamin B<sub>2</sub> (D) Vitamin B<sub>6</sub>
38. In secretory gland when secretion is gathered at the end of the cell and only the part of the cell is cast off, it is termed as :  
(A) Apocrine gland (B) Merocrine gland  
(C) Holocrine gland (D) Heterocrine gland
39. "Inheritance of acquired characters", is one of the postulate of :  
(A) Lamarck Concept (B) Darwins Law  
(C) Mendel's Law (D) Deveries Theory
40. Chlorogogen cells which are modified Peritoneal cells are present around :  
(A) Digestive tract of Earthworm (B) Blood of Cockroach  
(C) Blood of Ascaris (D) Digestive tract of Cockroach
41. Programmed Cell Death is :  
(A) Apoptosis (B) Necrosis  
(C) Steatosis (D) Cirrhosis
42. Which one of the following is unrelated to the general characters of Echinodermata ?  
(A) Dermal skeleton (B) Water vascular system  
(C) Deuterostomes (D) Exclusively fresh water forms
43. Streptomycin inhibits :  
(A) Eukaryotic transcription (B) Eukaryotic translation  
(C) Prokaryotic transcription (D) Prokaryotic translation

44. In obelia the hydrocaulus is covered by a non living chitinous sheath which is protective in function, it is called :
- (A) Hydrorhiza (B) Hydranth  
(C) Perisarc (D) Coenosarc
45. The sense of hearing in mammals is attributed to :
- (A) Otolith (B) Sacculus  
(C) Cochlea (D) Vestibule
46. Macrophages are :
- (A) Neutrophils (B) Basophils  
(C) Eosinophils (D) Monocytes
47. Appearance of cortical granules help in :
- (A) Ovulation (B) Spermiogenesis  
(C) Oogenesis (D) Fertilization
48. Formation of new species is termed as :
- (A) Isolation (B) Mutation  
(C) Speciation (D) Genetic drift
49. “Animals inhabiting in temperate zone have less pigmentation in their skin and hence fairer in colour as compared to their counterparts in tropical area”, this is the theme of :
- (A) Jordan’s Rule (B) Gloger’s Rule  
(C) Bergman’s rule (D) Gies’s Rule
50. Malaria, Filaria and Kalazar spread due to :
- (A) Mosquitoes (B) Flies  
(C) Mites (D) Insects
51. Events of cell cycle are regulated by :
- (A) Cyclin dependent kinases (B) Histidine dependent growth factors  
(C) Growth inhibiting factors (D) No growth factors regulate cell cycle



52. In the life history of *Fasciola* one witnesses the following stage in proper sequence :
- (A) Miracidium, Sporocyst, Redia, Cercaria, Metacercaria  
(B) Cercaria, Metacercaria, Miracidium, Redia, Sporocyst  
(C) Redia, Sporocyst, Miracidium, Metacercaria, Cercaria  
(D) Miracidium, Sporocyst, Redia, Cercaria, Metacercaria
53. Temporal fossa is the basis of classification of :
- (A) Birds (B) Mammals  
(C) Fishes (D) Reptiles
54. Ductus Botali is absent in :
- (A) Anura (B) Apoda  
(C) Urodela (D) Both Urodela and Anura
55. Alcaptonuria is a rare :
- (A) nutritional disease (B) infectious disease  
(C) pollutional disease (D) metabolic disease
56. Pleura is a double layered covering of :
- (A) Brain (B) Lungs  
(C) Stomach (D) Kidneys
57. Identify the wrong pair :
- (A) *Pristis* Elasmobranchi  
(B) *Uraeotyphlus* Gymnophiona  
(C) *Struthio camelus* Kiwi  
(D) *Balaenoptera musculus* Cetacea
58. The lowest chromosome number is found in :
- (A) *Ameoba proteus* (B) *Taenia solium*  
(C) *Ascaris megalocephala* (D) *Drosophila melanogaster*
59. The functional status of an organism in an ecosystem is called :
- (A) Ecological niche (B) Niche overlap  
(C) Energy flow (D) Biomagnification

60. Which one of the following is not essential for clotting ?  
(A)  $\text{Ca}^{++}$  (B)  $\text{Fe}^{++}$   
(C) Fibrinogen (D) Platelets
61. When the yolk is concentrated at one pole, it is called :  
(A) Telolecithal (B) Isolecithal  
(C) Microlecithal (D) Mesolecithal
62. When two species evolved same traits while living in the same type of environment, the type of evolution is :  
(A) Divergent evolution (B) Coevolution  
(C) Convergent evolution (D) Parallel evolution
63. Polymorphism is best seen in :  
(A) *Hydra* (B) *Obelia*  
(C) *Elphidium* (D) *Physalia*
64. The blood does not take part in respiration in :  
(A) Housefly (B) Centipede  
(C) Millepede (D) Spider
65. Gynecomastism is shown by the males in :  
(A) Primates (B) Eutherians  
(C) Metatherians (D) Prototherians
66. The only snake that build the nest is :  
(A) *Naja naja* (B) *Ophiophagus hannah*  
(C) *Echis carinata* (D) *Viper russel*
67. One of the following set represents Indian major carps :  
(A) *Labeo, channa, catla* (B) *Catla, puntias, channa*  
(C) *Labeo, catla, mrigal* (D) *Silver carp, common carp, grass carp*
68. Which one of the following is largest wet land in the world ?  
(A) Chilika lake (B) Pulicat lake  
(C) Pantanal lake (D) Vedanthangel

69. Which of the following pest damages paddy crop ?  
(A) *Dysdercus siniclis* (B) *Leptocorisa varicornis*  
(C) *Bruchus chinensis* (D) *Sitophilus sativa*
70. The system of collection of fluid from cytoplasm, a group membranous vesicles and tubules in protozoa is called :  
(A) Volume regulation (B) Osmotic regulation  
(C) Ionic regulation (D) Spongiome
71. India incurred heavy losses in aquaculture industry due to which one of the following disease ?  
(A) Blue gill (B) White spot  
(C) Dropsy (D) Black gill
72. If a single strand of DNA - 3' TACCGAGTAC 5' is given, the complementary DNA strand will be :  
(A) 5' ATGGCTCATG 3' (B) 5' AUGGCUCAUG 3'  
(C) 3' ATGGCTCATG 5' (D) 3' AUGGCUCAUG 5'
73. The ability of environment/habitat to support maximum number of organism is :  
(A) Carrying capacity (B) Natality  
(C) Fecundity (D) Biotic potential
74. The metal associated with cytochrome  $a_3$  of Electron transport system is :  
(A) Magnesium (B) Copper  
(C) Manganese (D) Iron
75. Greenhouse effect is concerned with :  
(A) Increase  $CO_2$  level decrease temperature  
(B) Increase  $CO_2$  level increase temperature  
(C) Decrease  $CO_2$  level increase temperature  
(D) Increase  $CO_2$  level decrease greenery
76. Which one of the following is not a Parasitic adaptation in helminthis ?  
(A) Presence of hooks and suckers (B) Complex reproductive system  
(C) Hard and tough outer covering (D) Well developed digestive system

77. In the process of development when growth occurs due to increase in cell sizes rather than cell number. It is termed as :
- (A) Neoplasia (B) Metaplasia  
(C) Hypertrophy (D) Hyperplasia
78. "Contact inhibition" is lost in :
- (A) Benign tumors (B) Malignant tumors  
(C) All tumors (D) Normal cells
79. Chemical substance secreted at the synapse is :
- (A) Cholecystokinin (B) Gastrin  
(C) Cholesterol (D) Acetyl choline
80. Olive Ridley turtle "aribada" is seen in :
- (A) Bhitarkanika wildlife sanctuary (B) Krishna wild life sanctuary  
(C) Nallapattu sanctuary (D) Coring wild life sanctuary
81. In Quartan Malaria, the patient suffers due to shivering fever and associated symptoms after every :
- (A) 24 hrs (B) 48 hrs  
(C) 72 hrs (D) 96 hrs
82. In sponges food particles are digested by :
- (A) Archaeocytes (B) Amoebocytes  
(C) Choanocytes (D) Porocyte
83. "It is not only too less of a factor but also too high of a factor, that limits population density and growth of organism". This is the central theme of :
- (A) Tragedy of commons (B) Law of tolerance  
(C) Law of minimum (D) Law of limiting factors
84. Select the correct statement :
- (A) *Dentalium* is a snail with no head  
(B) Scaphopoda has large head with eyes, foot as tentacles and siphon  
(C) Rasping organ, radula is found in bivalves  
(D) *Chiton* has reduced head with large foot

85. Mesogloea of *Hydra* is:
- (A) Acellular and cannot be crossed by interstitial cells
  - (B) Acellular and can be crossed by interstitial cells
  - (C) Cellular and gives rise to germ cells
  - (D) Cellular and contains mesenchyme cells
86. Which one of the following is incorrect about new world monkeys ?
- (A) No bony external auditory meatus
  - (B) Cheek pouches are absent
  - (C) Pollex is opposable
  - (D) Ischial callosities are missing
87. The enzyme which plays key role in bioluminescence is :
- (A) Hydrolase
  - (B) Reductase
  - (C) Luciferin
  - (D) Luciferase
88. Hormones regulate gene activity at the level of :
- (A) Transcription
  - (B) Translation
  - (C) mRNA
  - (D) Transport of RNA from nucleus to cytoplasm
89. Heterosis is associated with :
- (A) Heterozygotes having more numerous the differences between uniting gametes
  - (B) Heterozygotes having less the differences between uniting gametes
  - (C) Homozygotes with less viability
  - (D) Homozygotes with more viability
90. Association between organisms of two different species in which one is inhibited/destroyed and the other is unaffected. This type of association is called :
- (A) Amensalism
  - (B) Parasitism
  - (C) Commensalism
  - (D) Mutualism
91. The ultradian rhythms are :
- (A) Recurrent periods or cycles repeated throughout a 24 hour circadian day
  - (B) Menstrual cycle is an example of it
  - (C) The regular ebb and flow of oceans and very large inland bodies of water
  - (D) It is roughly 24 hour cycle in the physiological processes of living beings

92. The tusks of Elephant are modified form of :
- (A) Lower canines (B) Upper canines  
(C) Lower incisors (D) Upper incisors
93. Spiders produce silken threads using :
- (A) Salivary glands (B) Coxal glands  
(C) Spinneret gland (D) Parotid gland
94. The term biocoenosis is coined by :
- (A) Elton (B) Hutchinson  
(C) Clarke (D) Mobius
95. Haversian system is present in :
- (A) Tendons (B) Cartilage  
(C) Bone (D) Muscle
96. If there are only two alleles of a particular gene in a population. If allele 'A' has a frequency of 0.3, then what will be the frequency of allele 'B' in the light of Hardy Weinberg principle ?
- (A) 0.6 (B) 0.7  
(C) 0.4 (D) 0.8
97. Cardiac muscles are striped muscles with :
- (A) Syncytial muscle fibres which are voluntary in action  
(B) Uninucleate muscle fibres which are voluntary in action  
(C) Syncytial muscle fibres which are not voluntary in action  
(D) Spindle like muscle fibres which are involuntary in action
98. Identify the carcinogens :
- (A) Polycyclic hydrocarbons (B) Benzopyrenes  
(C) Dibenzanthracene (D) All of them

99. Which statement is correct about epistasis ?
- (A) The dominant and recessive alleles lack their dominant and recessive relationships and both express their expressions separately
  - (B) The two pair of genes present on the separate loci influence the same trait
  - (C) Two independent pairs of dominant genes which interact to produce the effect
  - (D) A gene at one locus on a chromosome suppresses the expression of a gene at another locus
100. The dispersed state of chromatin material in a chromosome is termed as :
- (A) Kinetochore
  - (B) Heterochromatin
  - (C) Euchromatin
  - (D) Centromere
101. Which is correct statement ?
- (A) Spotted deer is an endangered species
  - (B) Indian Board of Wild Life was established in 1955
  - (C) Trade in rare and endangered species was banned under Wild Life Protection Act (1972)
  - (D) The concept of Biosphere Reserves was evolved by the National Wild Life Action Plan
102. The ability of nerve and muscle cells to receive and respond to stimuli is called :
- (A) Twitch
  - (B) Excrement
  - (C) Increment
  - (D) Excitability
103. In earthworm each somite bears a pair of nephridia in the form of metanephridia except :
- (A) First five and last three segments
  - (B) First two and last one segment
  - (C) First three and last three segments
  - (D) First three segments
104. House flies, blow flies and fruit flies have :
- (A) Sponging mouth parts
  - (B) Sucking mouth parts
  - (C) Sponging and lapping mouth parts
  - (D) Biting mouth parts
105. *Rhodnius* and related genera transmit :
- (A) Kala Azar
  - (B) Sleeping sickness
  - (C) Oriental sore
  - (D) Chagas disease

106. Organ of Bojanur and Keber's organ are found in some :
- (A) Annelids (B) Molluscs  
(C) Urochordates (D) Cephalochordates
107. Which is internationally accepted method of DNA replication ?
- (A) Semi conservative (B) Dispersive  
(C) Okazaki fragments (D) Conservative
108. Iridophores :
- (A) are chromatophores having guanine and other purines and produce silvery or metallic effect  
(B) are chromatophores produce yellow and red colours  
(C) are ommochromes produce yellow pigment  
(D) are chromatophore which produce black pigment
109. Sliding Filament model of muscle contraction is proposed by :
- (A) A.F. Huxley and H.E. Huxley in 1960  
(B) A.F. Huxley 1970  
(C) H.E. Huxley 1970  
(D) A.F. Huxley and H.E. Huxley in 1954
110. Which one of the following is *not* a method of osmoregulation in fresh water fishes ?
- (A) They actively absorb sodium chloride across gills  
(B) They flush out Excess water that enters the body  
(C) Excess sodium chloride is secreted outward the gill  
(D) The Glomerular kidney produces dilute urine
111. Protonephridia are present in the excretory system of :
- (A) *Ciona* (B) *Petromyzon*  
(C) *Balanoglossus* (D) *Amphioxus*
112. Kolliker's pits are :
- (A) Olfactory receptors (B) Rheoreceptors  
(C) Photoreceptors (D) Gustatory receptors



113. Foramen of Monro is found in between :
- (A) Lateral ventricles and diococele      (B) Diacoele and Myelocoel  
(C) Paracoel and diacoele      (D) Paracoel and myelocoel
114.  $\frac{2123}{2123}$  is the dental formula of :
- (A) Man      (B) Tiger  
(C) Elephant      (D) Horse
115. Gharial is found in one of the following protected area :
- (A) Pulicat bird Sanctuary      (B) Corbett National Park  
(C) Keoladeo Ghana Bird Sanctuary      (D) National Chambal Sanctuary
116. The world's largest leech is :
- (A) *Acanthobdella*      (B) *Hirudo medicinalis*  
(C) *Pilacobdella domestica*      (D) *Haementaria ghilianii*
117. What is not true about *Caenorhabditis elegans* ?
- (A) It has rapid (about 16 hours) embryogenesis  
(B) It contains exactly 912 somatic cells  
(C) It is a free-living soil nematode  
(D) It helps to identify each gene in development as well as to trace the lineage of every single cell
118. Those individuals which are normally tall, having sparse body hair, knock knees, limbs long are due to :
- (A) Turner's syndrome      (B) Klinefelter's syndrome  
(C) Patau syndrome      (D) Down's syndrome
119. *Balanoglossus* consist of :
- (A) Probocis, collar and trunk      (B) Probocis and trunk  
(C) Head, neck and abdomen      (D) Probocis, trunk and tail
120. *Ameoba proteus* is discovered by :
- (A) Leewenhoek      (B) Dobell  
(C) Rosenhoff      (D) Hymann

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