

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

COMBINED COMPETITIVE (PRELIMINARY) EXAMINATION, 2010

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. Which of the following modifications does not occur in ER ?
(A) Glycosylation (B) Carboxylation
(C) Hydroxylation (D) Phosphorylation
2. Protein synthesis takes place in :
(A) Golgi Complex (B) Lysosomes
(C) Endoplasmic Reticulum (D) Mitochondria
3. Which of the following is called the power houses of cell ?
(A) Peroxisomes (B) Mitochondria
(C) Nucleus (D) Golgi Complex
4. Lysosomal Membranes become unstable in the presence of :
(A) Cholesterol (B) Cortisol
(C) Cortisone (D) Progesterone
5. Coenzyme Q acts as mobile carrier between which complexes of Mitochondria ?
(A) Complex I and III (B) Complex III and IV
(C) Complex I and II (D) Complex II and IV
6. Chromosomes are in their most extended state during :
(A) Prophase (B) Interphase
(C) Anaphase (D) Metaphase
7. Homologous chromosomes segregate during :
(A) Mitosis (B) Metaphase-I
(C) Metaphase-II (D) Fertilization
8. If a heterozygous is crossed with pure recessive the offspring will be _____ percent pure recessive.
(A) 100% (B) 75%
(C) 50% (D) 25%

9. How many characters were studied by Mendel in the experiments on peas ?
(A) 5 (B) 4
(C) 6 (D) 7
10. Chromosome with centromere in the middle are called :
(A) Acrocentrics (B) Telocentric
(C) Metacentric (D) Submetacentric
11. A mutation due to deletion or insertion of one or a few nucleotides is called :
(A) Sense mutation (B) Non-sense mutation
(C) Missense mutation (D) Frameshift mutation
12. Which of the histones does not take part in octamer formation ?
(A) H₂A (B) H₂B
(C) H₃ (D) H₁
13. The ribosomes of animal cells are :
(A) 80 S (B) 70 S
(C) 65 S (D) 55 S
14. RNA is synthesized in :
(A) Endoplasmic Reticulum (B) Nucleus
(C) Ribosomes (D) Peroxisomes
15. Scorpion belongs to which category ?
(A) Insects (B) Arachnids
(C) Brachiopoda (D) Crustacea
16. Which of the following is not a larval stage of liver fluke ?
(A) Miracidium (B) Sporocyst
(C) Cysticercus (D) Cercaria

17. Flame cells are associated with which system ?
(A) Circulatory (B) Digestive
(C) Excretory (D) Nervous
18. Metameric segmentation is found in :
(A) Annelida (B) Nematoda
(C) Urochordata (D) Cephalochordata
19. Name the free swimming larva of Sycon :
(A) Planula (B) Amphiblastula
(C) Ephyra (D) Redia
20. Regeneration is absent in :
(A) Fasciola (B) Planaria
(C) Schistosoma (D) Both (B) and (C)
21. Syncytial epidermis occurs in :
(A) Ascaris (B) Hydra
(C) Taenia (D) Leucosolenia
22. Locomotion in Earthworm is directly facilitated by :
(A) Mucus (B) Segmentation
(C) Contraction of segments (D) Setal and contraction of segments
23. Organisation present in Echinodermata is :
(A) Cell-Tissue level (B) Tissue level
(C) Organ level (D) Organ-system level
24. Which of the following is hermaphrodite ?
(A) Pila (B) Unio
(C) Earthworm (D) Cockroach

25. In sponges food particles are ingested by :
- (A) Thesocytes (B) Pinacocytes
(C) Myocytes (D) Choanocytes
26. Respiratory organs of a scorpion are called :
- (A) Tracheae (B) Book gills
(C) Book lungs (D) Gills
27. Which of the following is deuterostome ?
- (A) Starfish (B) Sea anemone
(C) Ant (D) Octopus
28. Which is an exclusive chordate character ?
- (A) True coelom (B) Pharyngeal gill slits
(C) Bilateral Symmetry (D) Triploblastic
29. Red blood cells are nucleated in :
- (A) Rat (B) Cat
(C) Frog (D) Rabbit
30. Poison glands of snakes are modified :
- (A) Salivary glands (B) Lacrymal glands
(C) Thyroid glands (D) Oil glands
31. In addition to mammals diaphragm is also present in :
- (A) Crocodiles (B) Toads
(C) Fishes (D) Birds
32. Sound box of birds is called :
- (A) Pygostyle (B) Larynx
(C) Syrinx (D) Symsacrum

33. Exoskeleton is absent in :
(A) Scoliodon (B) Frog
(C) Tiromastix (D) Pigeon
34. Craniostylic jaw suspension is present in :
(A) Scoliodon (B) Lizard
(C) Pigeon (D) Rabbit
35. Interclavical is absent in :
(A) Uromastix (B) Parrot
(C) Columba (D) Rabbit
36. Frog does not have :
(A) Caudal vertebrae (B) Sacral vertebrae
(C) Trunk vertebrae (D) Typical cervical
37. Teeth of uromastix are :
(A) Homodont (B) Acrodont
(C) Thecodont (D) Polyphyodont
38. Duodenum is absent in :
(A) Frog (B) Lizard
(C) Scoliodon (D) Rabbit
39. Sacculus rotundus is present in :
(A) Rabbit (B) Reptiles
(C) Amphibian (D) Fishes
40. Rectal glands are present in :
(A) Fish (B) Frog
(C) Birds (D) Mammals

41. Foramen Panizzae is present in :
(A) Scoliodon (B) Uromastix
(C) Rana (D) Columba
42. Corpus callosum is developed in :
(A) Amphibians (B) Reptiles
(C) Mammals (D) Birds
43. Ungulates have :
(A) Duplex uterus (B) Bipartite uterus
(C) Bicornuate uterus (D) Simplex uterus
44. The vertebra with flat centrum at both ends is called :
(A) Amphicoelus (B) Opisthocoelus
(C) Heterocoelus (D) Acoelous
45. Four chambers are present in stomach of :
(A) Ruminants (B) Carnivores
(C) Insectivores (D) Primates
46. Pancreas produces :
(A) Three digestive enzymes and one hormone
(B) Three types of digestive enzymes and two hormones
(C) Two digestive enzymes and one hormone
(D) Three digestive enzymes and no hormone
47. Enzymes taking part in Glycolysis are present in :
(A) Mitochondria (B) Cytoplasm
(C) Peroxisomes (D) Vacuoles
48. Final electron acceptor in Respiration :
(A) Hydrogen (B) Oxygen
(C) Cytochrome (D) Dehydrogenase

49. Hepatic portal system has route from :
- (A) Digestive system to liver (B) Kidney to liver
(C) Liver to heart (D) Liver to kidney
50. All veins have deoxygenated blood except :
- (A) Hepatic vein (B) Renal vein
(C) Hepatic portal vein (D) Pulmonary veins
51. Arbor vitae is composed of :
- (A) Grey Matter (B) White matter
(C) Neuroglial cells (D) All of above
52. Acetylcholine takes part in :
- (A) Enhancing membrane permeability (B) Synaptic termination
(C) Synaptic delay (D) None of above
53. Neurotransmitter between neuron and muscle cell is :
- (A) Dopamine (B) Serotonin
(C) Endorphin (D) Acetylcholine
54. Part of brain controlling balance and coordination is :
- (A) Cerebellum (B) Medulla oblongata
(C) Hypothalamus (D) Cerebrum
55. FSH acts on :
- (A) Sertoli cells (B) Leydig cells
(C) Cowper's gland (D) Spermatocytes
56. Resting potential of membrane is :
- (A) -60 mV (B) -75 mV
(C) -70 mV (D) $+70\text{ mV}$

57. Rhinocoel is cavity of :
- (A) Cerebral hemispheres (B) Olfactory lobes
(C) Diencephalon (D) Cerebellum
58. Which of the following is not synaptic component ?
- (A) Nerve cell (B) Terminal Knob
(C) Gland (D) Muscle fibre
59. Valves are present in :
- (A) Arteries (B) Veins
(C) Both arteries and veins (D) None of these
60. Which of the following cannot excrete hypertonic urine but can considerably reduce water loss in urine ?
- (A) Camel (B) Marsupial rat
(C) Birds (D) Horse
61. During beating of heart, in which region will highest pressure develop ?
- (A) Left Atrium (B) Left ventricle
(C) Right ventricle (D) Pulmonary artery
62. Which secretion released into alimentary canal, contains no enzyme but speeds up fat digestion ?
- (A) Bile (B) Intestinal juice
(C) Mucus (D) Pancreatic juice
63. Homeostasis requires which kind of control mechanism ?
- (A) Positive feedback (B) Negative feedback
(C) Large surface area : volume ratio (D) Counter current exchange
64. Eutherian placenta is derived from :
- (A) Allantois (B) Amnion
(C) Chorion and Allantois (D) Yolk sac

65. The nervous system is derived from :
- (A) Ectoderm (B) Endoderm
(C) Mesoderm (D) Ectomesoderm
66. The process in which cells become variable in morphology and function in different regions of the embryo is :
- (A) Differentiation (B) Determination
(C) Organisation (D) Metamorphosis
67. Spermiogenesis changes :
- (A) Spermatogonia to spermatocytes (B) Pri-spermatocyte to sec. spermatocytes
(C) Spermatid to sperm (D) Sec. spermatocyte to spermatid
68. Type of cleavage in an egg is determined by :
- (A) Number of egg membranes (B) Amount and distribution of yolk
(C) Size and location of nucleus (D) Shape and size of sperm
69. In the development of frog, Gastrulation involves :
- (A) Epiboly (B) Emboly
(C) Invagination (D) All of above
70. A Polyestrous mammal is :
- (A) Man (B) Cat
(C) Horse (D) Camel
71. Egg of frog is :
- (A) Centrolecithal (B) Isolecithal
(C) Telolecithal (D) Microlecithal
72. Ovulation occurs under the influence of :
- (A) LH (B) FSH
(C) Estrogen (D) Progesterone

73. Who gave the first definition of ecology ?
(A) Reiter (B) Haeckel
(C) Odum (D) Tansley
74. The transitional zone where 2 different communities meet is called :
(A) Ecoline (B) Ecotone
(C) Ecotype (D) Niche
75. Study of population ecology is called :
(A) Synecology (B) Demecology
(C) Phytosociology (D) Ecosystem
76. Biological equilibrium is an equilibrium amongst :
(A) Producers and decomposers
(B) Producers and consumers
(C) Producers, consumers and decomposers
(D) Consumers and decomposers
77. The second dominant trophic level in a lake ecosystem is :
(A) Zooplankton (B) Benthos
(C) Phytoplankton (D) Nekton
78. The type of food chain in which the energy rich organic compounds (matter) produced by producers is decomposed by microbes and is converted to energy rich compounds is called :
(A) Grazing food chain (B) Parasitic food chain
(C) Predator food chain (D) Detritus food chain
79. The ecological pyramid is a graphic diagram that shows relationship between :
(A) Organisms
(B) Various trophic levels of food chain
(C) Populations and communities within an ecosystem
(D) Transfer of food through food chain

80. Which pyramid can never occur in an inverted form ?
(A) Pyramid of Numbers (B) Pyramid of Energy
(C) Pyramid of Biomass (D) Pyramid of Species richness
81. Which gas was liberated during Bhopal Gas Tragedy ?
(A) Ethyl isocyanate (B) Methyl isocyanate
(C) Sodium isothiocyanate (D) Phenyl isocyanate and Phosgene
82. PAN (Peroxyacylnitrate) is a secondary pollutant and is found in :
(A) Smog (B) Fertilizer
(C) Herbicide (D) Pesticides
83. Itai-Itai a bone softening disease is due to the effect of :
(A) Mercury (B) Zinc
(C) Cadmium (D) Lead
84. *E. coli* is used as an indicator organism to determine pollution of water with :
(A) Industrial effluents (B) Pollen of aquatic plants
(C) Heavy metals (D) Fecal matter
85. Spontaneous generation theory of origin of life was disproved through experiments using swan-neck flasks by :
(A) Van Helmont (B) Spallanzani
(C) Louis Pasteur (D) Reeti
86. Which of the following is living fossil ?
(A) Euglena (B) Limulus
(C) Sycon (D) Balanoglossus
87. Which of the following is not vestigial organ in man ?
(A) Nictitating membrane (B) Epiglottis
(C) Vermiform appendix (D) Muscles of pinna

88. Connecting link between Annelida and Mollusca is :
- (A) Cuttle fish (B) Octopus
(C) Neopilina (D) Nautilus
89. Reappearance of certain ancestral characters is called :
- (A) Anabolism (B) Catabolism
(C) Atavism (D) Metabolism
90. Darwin's finches refer to :
- (A) Snakes present at Galapagos Islands (B) Birds present at the Galapagos Islands
(C) Fins of fishes collected by Darwin (D) Feathers collected by Darwin
91. Which of the following is responsible for evolution according to Neo-Darwinism ?
- (A) Mutation (B) Natural selection
(C) Mutations and Natural selection (D) None of these
92. Reproductive isolation results in :
- (A) Differentiation of species (B) Evolutionary Divergences
(C) Extermination of species (D) Maintenance of species
93. Who gave the theory of Pangenesis ?
- (A) Correns (B) Mendel
(C) Hugo-de-Vries (D) Darwin
94. Ontogeny repeats phylogeny. This is :
- (A) Pauling law (B) Hardy-Weinberg law
(C) Biogenetic law (D) Thomas law
95. Occurrence of endemic species in South America and Australia is due to :
- (A) Extinction of these species from other regions
(B) Continental separation
(C) Absence of terrestrial route to these places
(D) Retrogressive evolution

96. Parallelism is :
- (A) Adaptive divergence in evolution
 - (B) Adaptive convergence of widely different species in evolution
 - (C) Adaptive convergence of closely related species in evolution
 - (D) None of above
97. Remains of most recent fossil of man that have been known are those of :
- (A) Cro Magnon
 - (B) Java Man
 - (C) Peking Man
 - (D) Heidelberg man
98. Homo niabilus originated in :
- (A) Miocene
 - (B) Oligocene
 - (C) Pleistocene
 - (D) Holocene
99. A species is collection deme. A deme is a group of :
- (A) Genes
 - (B) Individuals
 - (C) Chromosomes
 - (D) Populations with a common gene pool
100. Relationship in an ecosystem can be depicted through :
- (A) Pyramid of energy
 - (B) Pyramid of numbers
 - (C) Pyramid of isomers
 - (D) All of above
101. Which of the following is not a poisonous snake ?
- (A) Krait
 - (B) Viper
 - (C) Rat snake
 - (D) Cobra
102. Seamia inferens is pest of :
- (A) Wheat
 - (B) Sugarcane
 - (C) Paddy
 - (D) Cotton
103. Common pest of cotton crop is :
- (A) Platyendra gossypiella
 - (B) Sesamia inferens
 - (C) Leptocorisa variocornis
 - (D) Pyrilla perpusilla

104. Stored grains and Pulses are infested by :
- (A) Callosobruchus (B) Tribolium
(C) Rhizopertha (D) All of above
105. Seasonal movements of animals from one defined place of residence to another is called :
- (A) Dispersal (B) Migration
(C) Homings (D) Emigration
106. In most ecosystems greatest amount of energy flows through the :
- (A) Secondary consumers (B) Herbivores
(C) Carnivores (D) Decomposers
107. Lymph hearts are absent in :
- (A) Fishes (B) Amphibians
(C) Reptiles (D) Mammals
108. From which of the following urea is formed ?
- (A) Fat (B) Glycerol
(C) Proteins (D) Starch
109. Which type of cells stimulate the release of Adrenalin ?
- (A) White blood cells (B) Muscle cell
(C) Pancreatic cell (D) Red blood cell
110. Sweat glands are epidermal glands found in :
- (A) All birds (B) Reptiles
(C) Mammals (D) Birds and Reptiles
111. Extinct reptiles had the skull type of :
- (A) Anapsid (B) Parapsid
(C) Diapsid (D) Synapsid

112. Book lice belongs to the order :
- (A) Mallophaga (B) Anolura
(C) Homoptera (D) Psocoptera
113. Best quality of silk comes from :
- (A) *Attacus ricini* (B) *Antheraca myllata*
(C) *Bombyx mori* (D) *Apis mellifera*
114. Kissing bugs transmit :
- (A) Sleeping sickness (B) Chagas disease
(C) Oriental sore (D) Malaria
115. The species of *Plasmodium* that attacks young erythrocytes :
- (A) *P. ovale* (B) *P. falciparum*
(C) *P. vivax* (D) Both (A) and (C)
116. The host of lac insect is :
- (A) Mango (B) Peepal
(C) Neem (D) Eucalyptus
117. Concentration of urine depends on :
- (A) Length of loop of Henle (B) PCT
(C) DCT (D) Intake of water
118. What regulates Heart beat ?
- (A) S A node (B) Cardiac branch of Vagus nerve
(C) Purkinje fibres (D) AV node
119. In which form, CO₂ is mostly carried in the blood ?
- (A) Sodium carbonate (B) Carbonic acid
(C) Bicarbonate ions (D) Carbamino haemoglobin

120. Enterokinase takes part in the conversion of :

- (A) Pepsinogen to pepsin
- (B) Trypsinogen to trypsin
- (C) Protein to polypeptides
- (D) Caseinogen to casein

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