

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2011.

Ph.D. (ZOOLOGY)
COURSE CODE : 129

Register Number :

*Signature of the Invigilator
(with date)*

COURSE CODE : 129

Time : 2 Hours

Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you -1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. A polysaccharide found in liver and muscle is
(A) Glycogen (B) Cellulose (C) Chitin (D) Pectin
2. Ratio of carbon, hydrogen and oxygen in carbohydrate is
(A) 1 : 1 : 2 (B) 2 : 2 : 1 (C) 2 : 1 : 2 (D) 1 : 2 : 1
3. Which of the following is an essential amino acid?
(A) Alanine (B) Serine (C) Valine (D) Arginine
4. Which of the following serves as coenzyme and co-factor in oxidative metabolism?
(A) Biotin (B) Vitamin B₂ (C) Vitamin B₆ (D) Niacin
5. Each gram of lipid is capable of yielding _____ calories of energy
(A) 4.1 (B) 9.3 (C) 4.0 (D) 9.1
6. The term vitamin was coined by
(A) Calvin (B) Funk (C) Kuhnn (D) Starling
7. Vitamin D is also called
(A) Antirachitic (B) Ascorbic acid (C) Retinol (D) Folic acid
8. Vitamin which is destroyed on heating is
(A) A (B) C (C) D (D) K
9. Riboflavin is
(A) Vitamin B₁ (B) Vitamin B₆ (C) Vitamin B₂ (D) Vitamin B₁₂
10. The process of maturation of erythrocytes is due to this vitamin
(A) B₂ (B) B₆ (C) D (D) B₁₂
11. The mineral which is essential for blood clotting
(A) Calcium (B) Potassium (C) Sodium (D) Chlorine
12. The daily secretion of saliva ranges from
(A) 1000-1500 ml (B) 1500-1700 ml (C) 1000-1200 ml (D) 2500-3000 ml

13. Mucin is an
(A) amino protein (B) glyco protein (C) acid protein (D) lipo protein
14. Ptyalin converts starch into
(A) lactose (B) sucrose (C) maltose (D) galactose
15. The parietal cells of the lining of the stomach secretes
(A) digestive enzymes (B) hydrochloric acid
(C) ptyalin (D) sucrose
16. Trypsinogen is activated by
(A) Bile salts (B) Trypsin
(C) Amylase (D) Enterokinase
17. Number of bones in an adult human body
(A) 246 (B) 210 (C) 206 (D) 225
18. Each muscle fibre is made up of _____ number of myofibrils
(A) 4 to 12 (B) 40 to 200 (C) 4 to 20 (D) 40 to 120
19. Thin filaments of A band is made up of
(A) Actin (B) Myosin (C) Pectin (D) Lysin
20. Rigor mortis is due to the complete depletion of _____ in muscle fibres
(A) Glycogen (B) CO₂ (C) ADP (D) ATP
21. The centre which helps to ensure rhythmic breathing
(A) cerebrum (B) cerebellum
(C) medulla oblongata (D) cortex
22. The blood flow on the left chambers of the heart is regulated by
(A) Tricuspid valve (B) Mitral valve
(C) Semilunar valve (D) Aortic valve

23. The duration of the sound lubb is
(A) 0.17 – 0.90 sec. (B) 0.16 – 0.90 sec.
(C) 1.6 – 0.09 sec. (D) 1.1 – 1.6 sec.
24. Narrowing of the arteries is called as
(A) Heart attack (B) Asttherosclerosis
(C) Angina (D) Heart block
25. Basic units of the nervous system is
(A) Nephrons (B) Neurons (C) Axon (D) Dendrite
26. Deficiency of growth hormone in children leads to
(A) Dwarfism (B) Gigantism (C) Goitre (D) Acromegaly
27. Which of the following hormones promotes the growth of graffian follicles?
(A) ACTH (B) STH (C) TSH (D) FSH
28. Testosterone is secreted by
(A) Mast cells (B) β cells
(C) Leydig cells (D) Megakaryocytes
29. Number of amino acids in Insulin hormone are
(A) 21 (B) 81 (C) 31 (D) 51
30. In emergency, blood pressure is controlled by
(A) Prolactin (B) Thyroxine (C) ACTH (D) Adrenalin
31. The hormone responsible for the development of placenta is
(A) Estrogen (B) Relaxin (C) Renin (D) Progesterone
32. Rods of retina contain the pigment
(A) Haemoglobin (B) Bilirubin (C) Rhodopsin (D) Melanin
33. Myopia can be corrected by this lens
(A) convex (B) concave (C) cylindrical (D) biconcave

34. Deficiency of Vitamin A leads to degenerative changes in
(A) rods (B) cones
(C) nervous layers of retina (D) all the above
35. Intensity of sound is measured by
(A) Joule (B) Decible (C) Volt (D) Hertz
36. The hair cells in the ear are stimulated by the movements of
(A) perilymph (B) endolymph (C) haemolymph (D) lymph
37. Permissible noise level in India is
(A) 81 dB to 102 dB (B) 80 dB to 120 dB
(C) 81 dB to 120 dB (D) 80 dB to 102 dB
38. Urea is synthesized by
(A) Krebs cycle (B) Ornithine cycle
(C) Citrulline cycle (D) Calvin cycle
39. In proximal convoluted tubule the urine is
(A) Hypertonic (B) Hypotonic
(C) Isotonic (D) Less hypertonic
40. The temperature necessary for an effective production of spermatozoa is
(A) 30° C (B) 32° C (C) 23° C (D) 22° C
41. Out of the following, which does not represent the 15th to 28th day of the menstrual cycle
(A) Premenstrual cycle (B) Luteal phase
(C) Progestational phase (D) Follicular phase
42. The most abundant green house gas is
(A) NO₂ (B) CO₂ (C) CO (D) SO₂

43. Average increase in the earth's temperature is called
(A) Global warming (B) Green house effect
(C) Temperature explosion (D) All the above
44. Which of the following gas/es destroy ozone layer faster?
(A) Chlorofluorocarbons (B) Hydrochlorofluorocarbon
(C) SO₂ (D) Both (A) and (B)
45. Biomedical wastes are disposed off by means of
(A) Land fills (B) Deep well injection
(C) Incineration (D) Microorganism
46. Which of the following is considered as a biologist paradise?
(A) Muthumalai Biosphere reserve
(B) Gulf of Mannar Biosphere reserve
(C) Nicobar Biosphere reserve
(D) Andaman Biosphere reserve
47. The primary source of all energy is
(A) fossil fuel (B) tidal energy (C) wind energy (D) solar energy
48. The instrument used to measure blood pressure is
(A) Kimograph (B) Haemocytometer
(C) Sphygmomanometer (D) Microscope
49. The largest lymphatic organ in the human body is
(A) liver (B) spleen (C) thymus (D) lumbar node
50. 36 ATP molecules will have about
(A) 2570 Kcal energy (B) 7.30 Kcal energy
(C) 273.6 Kcal energy (D) 686 Kcal energy
51. The vector for malaria is
(A) Male Anopheles sp. (B) Male Culex sp.
(C) Female Culex sp. (D) Female Anopheles sp.

52. The vector for Chickunkunya is
(A) Culex mosquito (B) Aedes mosquito
(C) Anopheles mosquito (D) Insect
53. Integration of virus with bacteria is called as
(A) Bacteriogeny (B) Virogeny (C) Sporogeny (D) Lysogeny
54. Tumour inducing viruses are called
(A) oncogenic viruses (B) para viruses
(C) variola viruses (D) pathogenic viruses
55. A method of cultivating a wide variety of animal viruses is
(A) Human embryo technique (B) Chicken embryo technique
(C) Karyotyping (D) Cloning
56. Interferons are
(A) Lipo protein (B) Acidic protein
(C) Glyco protein (D) Lipids
57. Retrovirus RNA is converted into DNA with the help of an enzyme called
(A) Peptidase (B) DNA polymerase
(C) Reverse transcriptase (D) Ligase
58. Which of the following drug is given for HIV patients?
(A) Rifampicin (B) Anthromycin (C) AZTs (D) Neomycin
59. Histamine is secreted by
(A) Epithelial cells (B) Mast cells (C) RBC (D) WBC

60. Cytotoxic lymphocytes are activated by
- (A) Activated T helper cells (B) Activated Mast cells
(C) T helper cells (D) Activated B cells
61. Peyer's patches are present in
- (A) Appendix (B) Salivary gland (C) Gut (D) Tonsils
62. Which part of the antibody makes contact with antigen?
- (A) Epitope (B) Isotope (C) Hapten (D) Paratope
63. In transduction
- (A) Bacteriophage transfers DNA from donor to recipient cell
(B) Extra cellular DNA enters the recipient cell
(C) The Donor cell survives
(D) Both cells survive
64. Which of the following is not associated with lymphoid tissue?
- (A) MALT (B) GALT (C) GOUT (D) BALT
65. Karyotyping involves the culture of _____ cells
- (A) stem cells (B) nerve cells (C) blood cells (D) foetal
66. In recombinant DNA technology, which enzyme is used to cut the fragments of DNA?
- (A) S1 enzymes (B) DNA ligases
(C) Restriction endonuclease (D) DNA polymerase
67. Genetically engineered bacteria are called
- (A) clone bugs (B) bacteriophage
(C) super bugs (D) none of the above

68. Pseudomonas bacterium can destroy
- (A) octanes (B) xylene and camphors
(C) toluene (D) all the above
69. The cells of early embryo are
- (A) omnipotent (B) totipotent (C) pluripotent (D) important
70. According to the modern hypothesis of biological evolution of origin of life occurred on this earth about
- (A) 4.5 billion years ago (B) 3.5 billion years ago
(C) 5.5 billion years ago (D) 1.5 billion years ago
71. The mixing of the paternal and maternal chromosomes in the offspring is known as
- (A) parthenogenesis (B) amphimixis
(C) fertilization (D) embryogenesis
72. In mammalian egg, the follicular cells are held together by a cementing substance called
- (A) Antifertilizin (B) Hydrochloric acid
(C) Hyaluronic acid (D) Hyaluronidase
73. Human immuno deficiency virus was isolated and identified by
- (A) Charles Darwin (B) Anand Chakravarthi
(C) Dr. Funk (D) Prof. Robert Gallo
74. The confirmatory test for AIDS is
- (A) Western blot (B) Northern blot
(C) Southern blot (D) ELISA test
75. Superficial cleavage is seen in
- (A) Telolecithal eggs (B) Centrolecithal eggs
(C) Macrolecithal eggs (D) Mesolecithal eggs

76. The cell movements during gastrulation are collectively known as
(A) Invagination (B) Epiboly
(C) Delaminating movements (D) Morphogenetic movements
77. Neurogenesis, notogenesis and mesogenesis occur during the process of
(A) Gastrulation (B) Cleavage (C) Fertilization (D) Tubulation
78. The heart is developed from
(A) Mesoderm (B) Endoderm (C) Ectoderm (D) Blastoderm
79. The middle ear is developed from
(A) Endoderm (B) Ectoderm (C) Blastoderm (D) Mesoderm
80. The helical coiling of Z-DNA is
(A) right handed (B) left handed (C) both (A) and (B) (D) none of these
81. Which of the following is/are unsaturated fatty acid/fatty acids?
(A) Linoleic acid (B) Oleic acid (C) Palmitic acid (D) All the above
82. Fats are hydrolyzed into fatty acid and glycerol by the action of _____ enzyme
(A) Isomerase (B) Lipase (C) Pepsin (D) Dimutase
83. One molecule of palmitic acid with 16 c atoms, on complete β oxidation will produce _____ ATP molecules
(A) 8 (B) 10 (C) 129 (D) 12
84. The synthesis of glucose from fat is called
(A) Glycolysis (B) Gluconeogenesis
(C) Glycogenesis (D) Saponification
85. DNA replication occurs in
(A) S phase (B) G₂-phase (C) M-phase (D) G₁-phase

86. Which among the followings is the longest phase of cell division?
 (A) Anaphase (B) II prophase of meiosis I
 (C) Metaphase (D) I prophase of meiosis I
87. According to Jenning, the Chiasma formation takes place in
 (A) Pachytene stage (B) Diplotene stage
 (C) Leptotene stage (D) Zygotene stage
88. The infection particle of virus is called
 (A) capsid (B) virion (C) nucleocapsid (D) envelope
89. Tissue rejection is related with
 (A) Helper T cells (B) Cytotoxic T cells
 (C) Suppressor T cells (D) All the above
90. Antibodies are synthesized by
 (A) B lymphocytes (B) Phagocytes
 (C) Killer T lymphocytes (D) Helper T lymphocytes
91. Blood corpuscles shrink in a solution which is
 (A) Hypotonic (B) Hypertonic (C) Isotonic (D) None of these
92. Allergic reactions are related with
 (A) IgE (B) IgD (C) IG (D) IgM
93. The humoral immune system defends mostly against bacteria and viruses in the
 (A) body fluids (B) digestive tract
 (C) internal organs (D) beneath the skin
94. The outer surface of the entire nervous system is covered by a thin adherent membrane called
 (A) durameter (B) arachnoid membrane
 (C) piameter (D) cisterns

95. The number of spinal nerves in man is
(A) 31 pairs (B) 32 pairs
(C) 23 pairs (D) 13 pairs
96. The removal of this part results in Shaky, Jerky movements
(A) cerebrum (B) pons
(C) cerebellum (D) thalamus
97. Hemophilia was first reported by
(A) Baltzer (B) Wilson
(C) Bridges (D) John Cotto
98. The chromosomal make up $44A + XXY$ denotes
(A) Turner's syndrome (B) Down's syndrome
(C) 13-Trisomy (D) Klinefelter syndrome
99. How many nucleotides are present in a codon?
(A) three (B) four
(C) six (D) one
100. A person with blood group B can receive blood from persons with blood group
(A) AB and A (B) A and B
(C) B and O (D) O and AB
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