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 B₁   (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) Asthersclerosis
   (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. Urrea 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, the 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 $\beta$ 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) piiameter                   (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