ENTRANCE EXAMINATION FOR ADMISSION, MAY 2013.
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 of the 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. The uptake of genes by the cells in animals is called
   (A) Transfection  (B) Transgenism
   (C) Molecular farming  (D) Embryo culture

2. Production of transgenic animals of commercial value such as livestock and fishes called
   (A) Molecular cloning  (B) Transgenesis
   (C) Molecular farming  (D) All the above

3. Complementery DNA is produced from
   (A) DNA dependent RNA polymerase  (B) DNA polymerase
   (C) Reverse transcriptase  (D) DNA helicase

4. One of the following is used to join the segments of DNA during genetic engineering
   (A) Lipase  (B) Ligase
   (C) Gyrase  (D) Helicase

5. The transfer of genetic material from one cell to another by a phage is called
   (A) Transformation  (B) Conjugation
   (C) Transduction  (D) Hybridization

6. A technique used to make numerous copies of a specific segment of DNA quickly and accurately is
   (A) Translation  (B) Transcription
   (C) Ligase chain reaction  (D) Polymerase chain reaction

7. The best method to protect genetic resources is
   (A) Gene library  (B) Cloning of animals
   (C) Cryopreservation  (D) Multiplication

8. The transgenic animals are those which have
   (A) Foreign DNA in some of their cells  (B) Foreign DNA in all of their cells
   (C) Foreign RNA in all of their cells  (D) Both (A) and (B)

9. Vectorless gene transfer includes
   (A) Particle gun  (B) Microinjection
   (C) Electroporation  (D) All the above
10. The enzyme which converts the cohesive ends of a single stranded DNA fragment into blunt ends
   (A) Alkaline phosphatase  (B) Reverse transcriptase
   (C) SI enzyme  (D) Exonucleases

11. Recent techniques used for separating fragment of DNA is
   (A) Northern blotting  (B) Southern blotting
   (C) Eastern blotting  (D) Western blotting

12. Transgenic fishes which are poorly adapted for survival in the wild but exhibit mating advantages is called
   (A) Trojan gene effect  (B) Purge effect
   (C) Spread effect  (D) Exotic effect

13. The genes transferred into fish include
   (A) Salmon or rainbow trout growth hormone
   (B) Winter flounder freeze protein
   (C) Chicken –delta crystalline protein
   (D) All the above

14. What is the name for mobile genetic elements?
   (A) Plasmids  (B) Pili
   (C) Barr body  (D) Transposons

15. The bacterium involved to clear up oil spill is
   (A) Pseudomonas  (B) E. coli
   (C) Streptomyces  (D) Bacillus

16. Production of monoclonal antibodies was discovered by
   (A) Barbara McClintock  (B) Hebert Bayer
   (C) Mertz and Davis  (D) Alec Jeffery

17. Which of the following commonly known as a fresh water grey mullet?
   (A) Notopterus  (B) Mugil coraula
   (C) Clarius  (D) Mastocembelus

18. Which of the following fishes has poisonous pectoral fins?
   (A) Clarias  (B) Channa
   (C) Heteropneustes  (D) Mystus
19. Fringed lower lip is a characteristic features of
   (A) Catla catla                         (B) Labeo rohita
   (C) Cirrhina mrigala                   (D) Wallago attu

20. Brackish water fishes were
   (A) Grey mullet and Sea bass            (B) Chanos chanos
   (C) Pearl spots                         (D) All the above

21. The supplementary feeding required to an adult fish per day is
   (A) 2% of its body weight                (B) 1.55% of its body weight
   (C) 1% of its body weight                (D) 0.5% of its body weight

22. This is considered as the tastiest fish among carps
   (A) Catla catla                         (B) Labeo rohita
   (C) Cirrhina mrigala                    (D) Wallago attu

23. The two major factors that govern the productivity of a fish culture pond are
   (A) Feed and water quantity              (B) Number of fish and water quality
   (C) Feed and water quality               (D) Feed and medicine

24. Rohu fish belongs to
   (A) Surface feeder                      (B) bottom feeder
   (C) Column feeder                       (D) Air feeder

25. The standard combination of NPK recommended for fresh water pond for fish farming is
   (A) 18:10:4                               (B) 10:8:4
   (C) 4:10:18                               (D) 10:20:18

26. The pH of the water in a fish culture pond is
   (A) 6.5-7.5                               (B) 6.5-8.5
   (C) 6.5-9                                 (D) 6.5-7

27. The percentage of carbohydrate required in artificial fish feed is
   (A) 30-40%                                (B) 40-50%
   (C) 50-60%                                (D) 60-70%
28. Which of the following gives high quality pearl?
   (A) Placuna margaritifera
   (B) Pinctada roding
   (C) Pinctada vulgaris
   (D) Pinctada anamioides

29. The protein content of fish is
   (A) 10%-15%
   (B) 15%-30%
   (C) 13%-20%
   (D) 20%-50%

30. Which of the following is the largest sea prawn found in India?
   (A) Penaeus indicus
   (B) Metapenaeus dobsoni
   (C) Penaeus monodon
   (D) Palaemon tenuipes

31. Nursery ponds are _________ in nature
   (A) Deep
   (B) Very deep
   (C) Shallow
   (D) Moderate shallow

32. Young ones of rohu and mrigal feeds on
   (A) Phyto plankton
   (B) Zoo plankton
   (C) Aquatic plants
   (D) Plant debris

33. The vitamins found in fish are
   (A) Vitamin C and Vitamin D
   (B) Vitamin B and Vitamin D
   (C) Vitamin A and Vitamin D
   (D) Vitamin A and Vitamin B

34. The chemical spread over the bottom of the pond to remove the acidity and kill the soli organism is
   (A) Calcium hydroxide
   (B) Calcium carbonate
   (C) Calcium nitrate
   (D) Poultry manure

35. The dorsal fin of Rohu fish has
   (A) 11 to 12 branched rays
   (B) 9 to 10 branched rays
   (C) 12 to 13 branched rays
   (D) 8 to 9 branched rays

36. Name of the fatty acids helpful in cholesterol regulation and promoting cardiac health
   (A) Poly saturated fatty acids
   (B) Poly unsaturated fatty acids
   (C) Saturated fatty acids
   (D) Unsaturated fatty acids

37. The strategy of storing CO₂ and its compound somewhere at safe place is called is
   (A) Carbon sequestration
   (B) Carbonification
   (C) Carbonization
   (D) Carbondioxide store
38. If green house effects does not exists
   (A) Earth temperature will increase
   (B) Earth will be cooled
   (C) Global warming will occur
   (D) Earth temperature remain unaltered

39. One of the following is a Freon gas
   (A) Trifluromethyl
   (B) Triichlorofluorocarbon
   (C) Difluromethyl
   (D) Chlorofluorocarbons

40. The absence of decomposers, ecosystem functioning is adversely affected due to
   (A) Blocking of energy flow
   (B) Blocking of mineral cycling
   (C) Blocking of solar energy to herbivores
   (D) Rate of other composition will increase.

41. Which ecosystem has the highest primary productivity?
   (A) Pond ecosystem
   (B) Lake ecosystem
   (C) Grassland ecosystem
   (D) Forest ecosystem

42. Niche of a species in an ecosystem refer to its
   (A) Place of occurence
   (B) Competitive ability
   (C) Centre of origin
   (D) Function at the place of occurrence

43. When population is allowed to grow in a limited environment, it shows
   (A) Exponential growth
   (B) Logistic growth
   (C) Unlimited growth
   (D) None of these

44. The conversion of nitrate to nitrous oxide and nitrogen gas is termed as
   (A) Nitrification
   (B) Denitrification
   (C) Nitrogen fixation
   (D) None of these

45. In the profundal zone
   (A) There is no photosynthetic activity
   (B) No animal is found
   (C) Maximum photosynthesis
   (D) Dark bottom
46. In India coniferous forests are found in
   (A) Madhya Pradesh  (B) Himalayan region
   (C) Satpura hills   (D) Rajasthan

47. What is eco-freeze?
   (A) Halting ecological degradation
   (B) Stoping ecological disaster
   (C) Planning an ecological balance
   (D) Stopping the manufacture of environment modification weapons

48. Where is the International Environment Information centre located?
   (A) Melbourne  (B) Newyork
   (C) Bonn      (D) Frankfurt

49. Which of the following animal has become extinct in India?
   (A) Asiatic lion  (B) Snow leopard
   (C) Cheetah      (D) Rhinoceros

50. High level radio active wastes are stored in
   (A) Deep underground storage  (B) Deep well injection
   (C) Surface impoundments       (D) Incineration

51. The areas characterized by high concentration of endemic species and unusually rapid rate of habitat modification loss are called
   (A) Key spots  (B) Key stones
   (C) Hot stones  (D) Hot spots

52. The cheapest and reliable source of all renewable source of energy?
   (A) Mini hydel  (B) Geothermal
   (C) Wind       (D) Solar

53. The gobar gas plants are based on the process called
   (A) Fermentation  (B) Aerobic fermentation
   (C) Anaerobic fermentation  (D) Nitration

54. The convention of Biodiversity consists of
   (A) 45 articles  (B) 42 articles
   (C) 52 articles   (D) 75 articles
55. The solar cells contain both poisonous and a possible carcinogenic substance called
   (A) Cadmium  (B) Radium
   (C) Thorium  (D) Uranium

56. Excessive inhalation of manganaes causes
   (A) Anemia  (B) Diphtheria
   (C) Pneumonia (D) Gout

57. Of the following elements, which one is a carcinogen?
   (A) Arsenic  (B) Gold
   (C) Calcium  (D) All the above

58. Cold burning in houses produce one of the most hazardous gases
   (A) Sulphur dioxide  (B) Carbon dioxide
   (C) Carbon monoxide (D) Hydrogen sulphide

59. The term “Over kill” deals with
   (A) Pesticide poisoning  (B) Soil erosion
   (C) Nuclear holocaust  (D) Global warming

60. Methenoglobinemia occurs in infants and farm animals by poisoning of
   (A) Phosphate  (B) Nitrite
   (C) Sulphate  (D) Carbonate

61. Air pollutants enter the body through
   (A) Respiratory system  (B) The digestive system
   (C) The excretory system (D) All the above

62. The most common indicator organism that represent polluted water is
   (A) E.coli  (B) Entamoeba
   (C) C. vibrio  (D) P. typhi

63. Which part of the human body is much affected by nuclear radiation?
   (A) Brain  (B) Liver
   (C) lungs  (D) bone marrow

64. Xenobiotics are dealt with in the liver by a process called
   (A) Bioexcretion  (B) Biotreatment
   (C) Bioconversion  (D) Biotransformation

65. Which of the following concentration of Ozone in ambient air is considered good?
   (A) upto 0.06 ppm  (B) upto 0.12 ppm
   (C) upto 0.20 ppm  (D) more than 0.20 ppm
66. Which of the following is more toxic?
   (A) Organochlorine insecticides    (B) Organophosphates insecticides
   (C) Fumigant insecticides         (D) Disinfectants

67. Which of the following forms of high energy radiation are most penetrating and
dangerous?
   (A) Alpha particles                (B) Beta particles
   (C) Neutrons                       (D) All of them

68. Toxicant involving a stimulus, severe enough to bring about a response speedily, with
in four days is called
   (A) Chronic toxicity                (B) Lethal toxicity
   (C) Acute toxicity                  (D) Sublethal concentration

69. In food monosodium glutamate is used as a
   (A) Colouring agent                 (B) Antioxidant
   (C) Stabilizer                      (D) Flavor enhancer

70. Which compounds causes the ozone hole in Antartic area?
   (A) Chlorine and iodine             (B) Chlorine and carbon
   (C) Bromine and chlorine            (D) Bromine and carbon

71. When subjected to thyroidectomy, or if the pond water contains no iodine, a tadpole of
frog will
   (A) Die soon                        (B) Turn into dwarf frog
   (C) Grow into giant frog            (D) Remain tadpole throughout life

72. In several vertebrates, an increase in BP, volume of blood, formation of glycogen and
rate of heart beat caused by the hormone
   (A) Thyroxine                        (B) Gastrin
   (C) Adrenaline                       (D) Secretin

73. Gonadotrophic hormone are produced by
   (A) Adenohypophysis                  (B) Neurohypophysis
   (C) Adrenal cortex                   (D) Thyroid

74. Thyroid gland of vertebrates is considered to be homologues to the following part of
the lower chordates
   (A) Nerve cord                        (B) Endostyle
   (C) Neural gland                     (D) Pharyngeal gill pouches
75. Vasopression is related with
   (A) Concentration  (B) Fast digestion
   (C) Slow heart beat  (D) Slow respiration

76. Which hormone governs and play a key role in carbohydrate metabolism?
   (A) Glucocorticoids  (B) Insulin
   (C) Thyroxine  (D) All of these

77. Names of which set are used for a single hormone
   (A) Secretin, Gastrin and enterokinin  (B) Thyroxin, oxytocin and secretin
   (C) Testosterone, LTH and GTH  (D) ADH, vasopression and pitressin

78. Whose secretion is not under control of pituitary?
   (A) Thyroid  (B) Testis
   (C) Adrenal medulla  (D) Adrenal cortex

79. Secretion of androgens by testes regulated by
   (A) Oxytocin  (B) Leuteotrophic hormone
   (C) FSH  (D) Luteinzing hormone

80. The role of progesterone hormone is
   (A) To thicken Uterine wall  (B) To increase blood supply to uterine wall
   (C) To build up fat and glycogen in uterine wall  (D) All of these

81. Life saving hormones secreted by
   (A) Hypophysis  (B) Pineal
   (C) Adrenal  (D) Thyroids

82. Structure involved in Addisons disease is
   (A) Adrenal medulla  (B) Adrenal cortex
   (C) Thyroid  (D) Parathyroid

83. Hormone that stimulates contraction of gall bladder
   (A) Secretin  (B) Gastrin
   (C) Glucagon  (D) Cholecystokinin
84. Hormone which helps in implantation of embryo in uterus
   (A) Progesterone  (B) Relaxin
   (C) Estrogen      (D) Thyroxine

85. Receptors of protein hormones are located
   (A) In cytoplasm   (B) On cell surface
   (C) In nucleus     (D) On endoplasmic reticulum

86. Which endocrine gland stores its secretion in extra cellular space before discharging it into the blood?
   (A) Pancreas       (B) Adrenal
   (C) Testis         (D) Thyroid

87. Technique used for estimation of minute amounts of hormones and drugs is called
   (A) Fractionation  (B) Radio immuno assay
   (C) Electrophoresis (D) Electrencephalogram

88. After ovulation, the empty follicle is transformed into a transitory endocrine gland called
   (A) Corpus luteum  (B) Progesterone
   (C) Oestrogen      (D) Corpus albicans

89. The primary egg membrane surrounds the ovum is
   (A) Zona pellucida  (B) Zona radiata
   (C) Corona pellucida (D) Corona radiata

90. Which of the following hormone is called master hormone?
    (A) Oxytocin       (B) Thyroxine
    (C) Melatonin      (D) Progesterone

91. Which hormone is produced in a women if pregnancy has occurred?
    (A) Estrogen       (B) Chorionalgonadotropin
    (C) Progesterone   (D) LH

92. At menopause, there is a rise in urinary excretion of
    (A) STH            (B) FSH
    (C) LTH            (D) MSH
93. For an effective production of spermatozoa, the temperature of testes should be maintained at
(A) 30° C (B) 32° C
(C) 36° C (D) 38° C

94. Which among the following interrelated in testicular function?
(A) Hypothalamus (B) Anterior pituitary
(C) Testis (D) All the above

95. Oestrogens are secreted by the
(A) Theca interna of the ovum (B) Cells of graffian follicle
(C) Corpus luteum and placenta (D) All the above

96. Duration of luteal phase is between
(A) 5th day-14th day (B) 15-28th day
(C) 1-5th day (D) 28th day

97. Hormone used to hasten delivery under special circumstances
(A) Progesterone (B) Estrogen
(C) Progestin (D) Oxytocin

98. Amniotic fluid protects the foetus from
(A) Degeneratin (B) Jerks
(C) Encystment (D) None of the above

99. Increased fetal cortisol just before birth results in
(A) Uterine contractions (B) Release of oxytocin
(C) Placental steroid biogenesis (D) Fetal lung maturation

100. Hormone which stimulates the "let down" release of milk from mothers breasts when the baby is sucking is
(A) Oxytocin (B) Prolactin
(C) Progesterone (D) Relaxin