COURSE CODE : 133

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. How many Zoogeographical regions are there in this world?
   (A) 7  (B) 9  (C) 6  (D) 12

2. Which Zoogeographic region is called as living museum?
   (A) Palaearctic  (B) Ethiopian  (C) Oriental  (D) Australian

3. Who first divided the Zoogeographic regions?
   (A) Sclater  (B) Wallace  (C) Linnaeus  (D) Darwin

4. Reproductive isolation in sympatric speciation develops with a
   (A) Geographic barrier  (B) Barrier to gene flow
   (C) Change in chromosome  (D) Barrier to mating

5. Sympatric speciation occurs most commonly in
   (A) Mammals  (B) Plants  (C) Birds  (D) Fishes

6. Population with overlapping geographic ranges are known as______ populations in the
   areas of overlap
   (A) Sympatric  (B) Allopatric
   (C) Parapatric  (D) None of the above

7. Hardy-Weinberg law is associated with
   (A) Plant disease  (B) Eugenics
   (C) Population genetics  (D) Embryology

8. The total collection of genes, at any one time, in a unit evolution is called the
   (A) Genotype  (B) Demotype
   (C) Multiple allelic group  (D) Gene pool

9. Ribozyme is
   (A) RNA with extra phosphate  (B) RNA without phosphate
   (C) RNA without sugar  (D) RNA with enzyme activity

10. Enzymes with different molecular configurations, but with same function are called
    (A) Isocoenzymes  (B) Apoenzymes
     (C) Co-enzymes  (D) Inducible enzymes

11. Which of the following causes water pollution?
    (A) 2,4-D and pesticides  (B) Smoke
     (C) Automobile exhaust  (D) Aeroplane
12. The biological amplification of pollutant means
   (A) The accumulation of pollutants in top carnivores through food chain
   (B) The increase in the potentiality of the living organism
   (C) The increase in the population of top carnivores
   (D) None of the above

13. DDT causes egg shell thinning in birds because it inhabits:
   (A) Magnesium ATPase  (B) Calcium ATPase
   (C) Carbonic anhydrase  (D) Calmodulin

14. Pollution caused by persistent pesticides is relatively more dangerous to which type of organisms?
   (A) Herbivores    (B) Producers
   (C) Top-carnivores (D) First level carnivores

15. Minamata disease is a pollution related disease which results from:
   (A) Oil spill into sea
   (B) Release of human organic waste into drinking water
   (C) Accumulation of arsenic into atmosphere
   (D) Release of industrial waste of mercury into fishing water

16. Release of phosphates and nitrates in water bodies likes lakes lead to:
   (A) Increased growth of decomposers  (B) Nutrient enrichment
   (C) Reduced algal growth              (D) None of these

17. Eutrophication refers to:
   (A) High production in an aquatic ecosystem
   (B) Low production in a terrestrial ecosystem
   (C) Stable production in a terrestrial ecosystem
   (D) Low production in an aquatic ecosystem

18. Complete eutrophication of a lake renders it:
   (A) Nutrient rich and productive
   (B) Nutrient poor and unproductive
   (C) Nutrient rich and unproductive
   (D) Nutrient poor and productive

19. BOD of a river water is found very high. This means water:
   (A) is clean    (B) is highly polluted
   (C) contain algae (D) contain many dissolved minerals
20. Thermal pollution of water bodies due to:
(A) Discharge of waste from mining
(B) Discharge of agricultural run-off
(C) Discharge of chemicals from industries
(D) Discharge of heat (hot water) from power plants

21. Sounds above what level are considered hazardous noise pollution?
(A) Above 30 dB (B) Above 80 dB
(C) Above 120 dB (D) Above 100 dB

22. The most outstanding danger at present for survival of living beings on earth is:
(A) Glaciation (B) Deforestation
(C) Radiation hazards (D) Desertification

23. The term 'Nuclear winter' is associated with
(A) Nuclear war (B) Nuclear disarmament
(C) Nuclear weapon testing (D) Aftermath of a nuclear holocaust

24. Which of the following chemicals causes bone cancer and degeneration of tissues?
(A) Iodine-131 (B) Calcium-40 (C) Iodine-127 (D) Strontium-90

25. Biological control of agricultural pests, unlike the chemical control is
(A) Toxic (B) Very expensive
(C) Polluting (D) Self perpetuating

26. Oparin’s Theory is based on
(A) Artificial synthesis (B) Spontaneous generation
(C) God’s will (D) All of the above

27. Which one of the following is the outcome of evolutionary process?
(A) Over production (B) Struggle for existence
(C) Adaptation of an organism to its environment (D) None of the above

28. Which of the following is considered as evolutionary force?
(A) Inheritance of acquired characters (B) Speciation
(C) Mutation (D) Natural selection

29. Natural selection means
(A) Better adaptability (B) Elimination of less adaptation
(C) Better survival (D) All of the above
30. The most important requirement of evolution is
   (A) Adaptation        (B) Mutation
   (C) Sexual reproduction (D) Development abnormality

31. Which of the following was the contribution of Hugo de Vries?
   (A) Theory of mutation
   (B) Theory of natural selection
   (C) Law of dominance
   (D) Theory of inheritance of acquired characters

32. Which law of evolution states that warm-blooded mammals of hot and humid areas have abundant melanin pigment?
   (A) Dollo's Law       (B) Gloger's Law  (C) Cope's Law       (D) Gause's Law

33. Phenomenon of 'industrial melanism' demonstrate
   (A) Natural selection (B) Induced mutation
   (C) Geographical isolation (D) Reproductive isolation

34. In a pond ecosystem, the shape of pyramid numbers is:
   (A) Upright       (B) Inverted       (C) Linear       (D) Irregular

35. The pyramid of energy is always:
   (A) Inverted
   (C) Both upright and inverted
   (D) Inverted of forest ecosystem (B) Upright

36. In ecological pyramid of numbers from base to apex, the number of carnivores:
   (A) increases
   (C) remains static
   (D) none of the above
   (B) decreases

37. The number of individuals of a species in a particular ecosystem at a given time remains constant due to:
   (A) Available food  (B) Predators  (C) Parasites
   (D) Man

38. The rate at which the light energy is converted into chemical energy of organic molecules is the ecosystem's:
   (A) Net primary productivity
   (C) Net secondary productivity
   (B) Gross primary productivity
   (D) Gross secondary productivity

39. Lotic ecosystem refers to
   (A) Static water ecosystem
   (C) Deep marine water systems
   (B) Ecosystem of estuaries
   (D) Ecosystem of flowing water
40. Which ecosystem doesn’t show variation depending upon geographic location and rainfall?
   (A) Marine ecosystem (B) Fresh water ecosystem
   (C) Desert ecosystem (D) Tropical ecosystem

41. The term ecosystem was coined by
   (A) Odum (B) Reiter (C) Ernst Haeckel (D) Tansley

42. Ecosystem consists of
   (A) A population
   (B) A population and its non-living environment
   (C) A biotic community
   (D) Temperature

43. Which one is not a factor of the abiotic environment?
   (A) Sunlight (B) Decomposers (C) Water (D) Temperature

44. Keystone species in an ecosystem are those
   (A) Present in maximum number
   (B) Contributing to ecosystem properties
   (C) That are most frequent
   (D) Attaining large biomass

45. A functional aspect of an ecosystem is
   (A) Producers, consumers and abiotic environment
   (B) Regulation of population
   (C) Light, temperature, oxygen and carbon dioxide
   (D) Both (A) and (C)

46. Biotic components of an ecosystem consists of
   (A) Producers
   (B) Consumers
   (C) Decomposers
   (D) All of the above

47. Driving force of ecosystem is
   (A) Solar energy
   (B) Biomass
   (C) Producers
   (D) Carbohydrate in plants

48. The number of primary producers within a specified area would be maximum in
   (A) Desert
   (B) Forest ecosystem
   (C) Grassland ecosystem
   (D) Pond ecosystem
49. Maximum number in pond ecosystem is of
   (A) Producers  (B) Consumers
   (C) Top consumers  (D) Decomposers

50. If we completely remove the decomposers from an ecosystem functioning will be adversely affected because
   (A) Energy flow will be blocked
   (B) Rate of decomposition of other components will be very high
   (C) Herbivore will not receive solar energy
   (D) Mineral movement will be blocked

51. Food levels in an ecosystem are called
   (A) Trophic levels  (B) Consumer levels
   (C) Producer levels  (D) Herbivore levels

52. The ultimate trophic level of any food chain is made of
   (A) Animals  (B) Tertiary consumers
   (C) Top carnivore  (D) Decomposers

53. In a food chain, animal constitute the
   (A) First trophic level  (B) Second trophic level
   (C) Last trophic level  (D) None of the above

54. Second order consumers are
   (A) All heterotrophs
   (B) Animals feeding on plants
   (C) Animals preying over herbivorous animals
   (D) Larger animals

55. Interlocking of food chains results in:
   (A) Ecological pyramids  (B) Food link
   (C) Food lock  (D) Food web

56. If the rate of addition of new species increases with respect to the individual loss of the same population, then the graph obtained has:
   (A) Declined growth  (B) Zero population growth
   (C) Exponential growth  (D) None of these

57. When population reaches carrying capacity:
   (A) Mortality rate = Birth rate  (B) Mortality rate > Birth rate
   (C) Mortality rate < Birth rate  (D) None of the above
58. A group of individuals of the same age within a population is called:
(A) Clone (B) Cohort (C) Cline (D) Community

59. Population which show gradual trends within zones of ecological variations are called
(A) Ecoclines (B) Clines
(C) Clones (D) None of the above

60. A population is a group of
(A) Species in a community (B) Communities in an ecosystem
(C) Individuals in a species (D) Individuals in a family

61. Population density is the
(A) Number of species per community (B) Number of individuals per community
(C) Number of individuals per species (D) Number of individuals per species per unit area or volume

62. Population dispersion is the
(A) Spatial distribution of individuals (B) Movement away from a natal site
(C) Movement from one fixed point to another and back again (D) Mixing of two population

63. Exponential growth occur when there is
(A) Asexual reproduction only (B) Sexual reproduction only
(C) A fixed carrying capacity (D) No inhibition from crowding

64. Logistic growth occurs when there is
(A) Asexual reproduction only (B) No inhibition from crowding
(C) A fixed carrying capacity (D) None of the above

65. The carrying capacity of a population is determined by its
(A) Population growth rate (B) Birth rate
(C) Limiting resource (D) Death rate

66. Organisms with very high intrinsic growth rates have
(A) Short generation time (B) Long generation time
(C) No carrying capacity (D) No courtship behaviours
67. Intraspecific competition is competition among
(A) Species
(B) Individuals of a population
(C) Populations and their regulatory factors
(D) Individuals of a community

68. Intraspecific competition is strongest when the
(A) Species overlap in their distribution
(B) Populations overlap in their ranges
(C) Population is at its carrying capacity
(D) Reproductive rate is at its maximum

69. In some animal population, crowding cause some individuals to emigrate. Such emigrants usually
(A) Establish new population elsewhere  (B) Successfully join other populations
(C) Return to their place of birth  (D) Die

70. The age-structure of a populations is its
(A) Relative number of individuals at each age
(B) Number of newborns each year
(C) Relative number of death at each age
(D) Number of young reaching puberty each year

71. Analogy is found between
(A) Hands of man and forelimbs of horse
(B) Hand of man and flippers of whale
(C) Wings of bat and butterfly
(D) Wings of bird and bat

72. Which set includes vestigial structures of man?
(A) Wisdom tooth, vermiform appendages, coccyx, nail
(B) Coccyx, wisdom tooth, vermiform appendix, auricular muscles
(C) Vermiform appendix, coccyx, wisdom tooth, pancreas
(D) Auricular muscles, nail, wisdom tooth, coccyx

73. Atavism in man means
(A) Appearance of ancestral characters
(B) Appearance of new characters
(C) Loss of some pre-existing characters
(D) Evolution of existing characters
74. Which of the following is an example of atavism?
   (A) Hairs on the head of man  (B) Feathers on birds
   (C) Tail in some babies       (D) Scales on fishes

75. The presence of gill slits in the embryos of all vertebrates supports the theory of
   (A) Metamorphosis             (B) Organic evolution
   (C) Biogenesis                (D) Recapitulation

76. Biogenetic law was postulated by
   (A) T.H. Morgan    (B) Darwin   (C) Haeckel   (D) Wallace

77. Which of the following characters provides a strong evidence in support of organic evolution?
   (A) Wings in insects, birds and bats
   (B) Jointed legs in arthropods and in mammals
   (C) Gill clefts in vertebrate embryo
   (D) Excretory organs of earthworm and frog

78. Who propounded the theory of aquatic or marine origin of life?
   (A) Thales                    (B) Erasmus Darwin
   (C) Spallanzani              (D) Aristotle

79. The presence of vestigial organs in man supports
   (A) Synthetic theory
   (B) Natural selection theory
   (C) Germplasm theory
   (D) The theory of evolution, but not Lamarck’s theory of inheritance of acquired characters

80. The tradition of boring ears and nostrils in Indian women
   (A) Supports Lamarckism
   (B) Disproves Lamarckism
   (C) Neither supports nor disproves Lamarckism
   (D) None of the above

81. Which one does not favour Lamarckian concept of inheritance of acquired characters?
   (A) Presence of webbed toes in aquatic birds
   (B) Absence of limbs in snakes
   (C) Melanisation of peppered moth industrial areas
   (D) Lack of pigment in cave dwellers
82. One of the several objections to natural selection theory of Darwin is
   (A) Struggle for existence
   (B) Continuity of germplasm
   (C) Inheritance of acquired characters
   (D) Many animals possess characteristics without utility and those that are positively harmful

83. Who provided experimental evidences for 'selection' in bacteria using replica plating technique?
   (A) Zinderberg  (B) Louis Pasteur  (C) Lister  (D) Lederberg

84. Modern synthetic theory of evolution was designated by
   (A) Haldane  (B) Huxley  (C) Stebbins  (D) Darwin

85. 'Performance theory' of evolution states that
   (A) All living forms have originated from ocean water
   (B) All living beings have arisen from a primordial fluid
   (C) Living things were animated by vital force
   (D) Ova contains miniatures of the adult in preformed state

86. Organic evolution was defined as
   (A) Formation of complex animals
   (B) Evolution of land and its organisms
   (C) Formation of existing animals and plants from simpler ones by a gradual change over a period of time
   (D) All of the above

87. The strongest support of organic evolution comes from the study of
   (A) Fossils  (B) Comparative anatomy  (C) Embryology  (D) Taxonomy

88. The early believe of spontaneous origin of life was disproved by
   (A) Charles Darwin  (B) Louis Pasteur  (C) Koch  (D) Lederberg

89. The theory of spontaneous generation was given by
   (A) Redi  (B) Pasteur  (C) Spallanzani  (D) Van Helmont

90. Who was one of the greatest advocates of the theory of special creation?
   (A) Huxley  (B) Charles Darwin  (C) Aristotle  (D) Father Suarez
91. About how long ago was the earth formed?
   (A) 20 million years ago  (B) 10 million years ago
   (C) 5 million years ago    (D) 3 million years ago

92. “Evolution: A modern synthesis” is the title of a book written by:
   (A) Thomas Huxley           (B) Aldous Huxley
   (C) J.B.S. Haldane           (D) Julian Huxley

93. Lamarck's argument in support of Theory of Evolution was centred around:
   (A) Use and disuse of organs (B) Survival of the fittest
   (C) Continuous variations    (D) All of the above

94. Charles Darwin knew of mutations. He called them
   (A) Continuous variations    (B) Discontinuous variation
   (C) Sports                   (D) None of the above

95. The author of the classical work “The origin of life on earth” is
   (A) Darwin               (B) Fox
   (C) Oparin               (D) Urey

96. According to Lamarck the presence of vestigial organs in animals was due to
   (A) Change of habitat       (B) Environmental reaction
   (C) Continuous disuse       (D) Inheritance of acquired character

97. The law which states that “Ontogeny repeats phylogeny” is known as
   (A) Law of heredity         (B) Biogenetic law
   (C) Theory of natural selection (D) Mutation theory

98. Formation of large molecules from small nucleoproteins is termed as
   (A) Coacervation                (B) Polymerization
   (C) Aggregation                 (D) All of these

99. Darwin's theory is also known as
   (A) Germinal – selection theory (B) Pangensis theory
   (C) Special creation theory     (D) Spontaneous generation theory

100. The first geological time scale was developed by
    (A) Aristotle       (B) Charles Lapworth
    (C) Adam Sedgwick   (D) Giovanni Avduina