

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2013.

Ph.D. (ZOOGEOGRAPHY)

COURSE CODE : 133

Register Number :

*Signature of the Invigilator
(with date)*

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. A(n) _____ includes all of the communities in a certain area, and the abiotic environment.
(A) Population (B) Community (C) Lithosphere (D) Ecosystem
2. The number of species in a particular community is known as
(A) complexity (B) diversity
(C) the niche (D) the intrinsic factor
3. If resources are not in short supply, _____ would not be expected to occur.
(A) Mutualism (B) Amensalism (C) Competition (D) Predation
4. Due to competition, an animal's _____ may be observed in nature.
(A) fundamental niche (B) realized niche
(C) deme (D) habitat
5. Frogs of the same species live in two ponds that are close, and the frogs do mate with each other, pond to pond. However, they do not interact to a great degree. They are considered to be members of different
(A) Populations (B) Communities
(C) Demes (D) Ecosystems
6. The study of population structure is
(A) demography (B) etymology
(C) ecology (D) helminthology
7. Modular animals are colonies of genetically identical organisms produced
(A) parthenogenically (B) by asexual cloning
(C) only during estrus (D) via internal fertilization
8. Type III survivorship curves, characteristic of most invertebrates and vertebrates such as fish, shows
(A) rapid mortality at early ages (B) constant mortality during life
(C) rapid mortality at later ages (D) none of the above
9. In the equations describing population growth, R indicates the
(A) intrinsic rate of increase (B) carrying capacity
(C) number in the population (D) death rate

10. In the equations describing population growth, K indicates the
 (A) intrinsic rate of increase (B) carrying capacity
 (C) number in the population (D) death rate
11. Exponential growth may be graphed (time versus population size) in a(n) shaped curve
 (A) S (B) K (C) C (D) J
12. Predator/prey and parasite/host relationships are classically considered to be
 (A) ++ (B) +- (C) -0 (D) --
13. A relationship that forms from past competition between two species in which one species benefits but the other experiences little harm is known as
 (A) Commensalism (B) Amensalism (C) Mutualism (D) Parasitism
14. Studies of different species of birds that live in forests have shown that to avoid competition, the birds will use the limiting resource in a slightly different way (e.g. foraging at different heights of the trees, or picking up insects of slightly different sizes). This is known as
 (A) niche overlap (B) character displacement
 (C) competitive exclusion (D) niche adjustment
15. Birds which divide up similar resources as described in the previous question may be described as belonging to a
 (A) Deme (B) Niche (C) Guild (D) Population
16. The relationship between predator and prey is best characterized by
 (A) character displacement (B) functional niches
 (C) realized niches (D) coevolution
17. A species which is of utmost importance in a community, such that its absence changes the entire character of the community is called the
 (A) keystone species (B) top dog
 (C) primary predator (D) primary guild
18. A _____ links trophic levels and depicts the transfers of energy and materials.
 (A) food web (B) pyramid of numbers
 (C) pyramid of energy (D) pyramid of biomass

19. Approximately _____ percent of the energy available at one trophic level is converted into new biomass in the next trophic level.
 (A) 5 (B) 10 (C) 25 (D) 75
20. Nutrients are exchanged between the biotic and abiotic components of ecosystems through
 (A) energy pyramids (B) food webs
 (C) biogeochemical cycles (D) predation
21. There are many exceptions to the classic pyramids, but the pyramid of _____ may never be inverted.
 (A) numbers (B) biomass (C) carnivores (D) energy
22. Interactions among demes resulting in gene flow and recolonization is referred to as
 (A) demography (B) parthenogenesis
 (C) Semelparity (D) metapopulation dynamics
23. An organism capable of reproducing more than one time during its life history is referred to as
 (A) Iterparous (B) Parthenogenic (C) Semelparous (D) a cohort
24. Abiotic extrinsic factors such as floods and fires are said to be _____ because the magnitude of their effect is not related to population size.
 (A) density dependent (B) density independent
 (C) limiting factors (D) competition based
25. Harmless species that resemble poisonous or harmful species are referred to as
 (A) keystone predators (B) endoparasites
 (C) mimics (D) host species
26. Global decline in biodiversity is primarily a consequence of
 (A) Disease (B) Habitat fragmentation and Loss
 (C) Predation (D) Recreational hunting.
27. Cnidarians are characterized by a _____ grade of organization.
 (A) cell-tissue (B) tissue-organ
 (C) organ-system (D) cellular
28. The majority of organisms exhibit the _____ grade of organization.
 (A) cell-tissue (B) tissue-organ
 (C) organ-system (D) cellular

29. Larger size attained by more evolutionarily advanced organisms prevented effective
(A) reproduction (B) circulatory systems
(C) respiration by cells deep within a body (D) digestive systems
30. Which of the following is not one of the four types of tissues?
(A) Nervous (B) Muscular
(C) Mesodermal (D) Epithelial
31. A fibrous protein that is particularly abundant in many types of connective tissues is
(A) Keratin (B) Collagen
(C) Sclerenchyma (D) Parenchyma
32. Which of the following is a pseudocoelomate animal?
(A) a sponge (B) a nematode (C) a fish (D) a jellyfish
33. Organisms that can be divided along the sagittal line into left and right halves that are mirror images are said to have _____ symmetry.
(A) Spherical (B) Radial (C) Biradial (D) Bilateral
34. Those parts of the body that are farther from the middle of the body are said to be
(A) Ventral (B) Dorsal (C) Distal (D) Proximal
35. The _____ plane is the imaginary plane dividing a bilateral organism into left and right halves.
(A) Sagittal (B) Transverse (C) Frontal (D) Coronal
36. Which of the following is not characteristic of protostomes?
(A) blastopore forms the mouth opening
(B) radial cleavage
(C) schizocoelous development
(D) mosaic embryo
37. The term ecosystem was coined by
(A) Odum (B) Reiter (C) Ernst Haeckel (D) Tansley
38. Ecosystem consists of
(A) A population
(B) A population and its non-living environment
(C) A biotic community
(D) Temperature

39. Which one is not a factor of the abiotic environment?
(A) Sunlight (B) Decomposers (C) Water (D) Temperature
40. 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
41. A functional aspect of an ecosystem is
(A) Producers, consumers and abiotic environment
(B) Regulation of population
(C) Light, temperature, oxygen and carbon di-oxide
(D) Both (A) and (C)
42. Biotic components of an ecosystem consists of
(A) Producers (B) Consumers
(C) Decomposers (D) All of the above
43. Driving force of ecosystem is
(A) Solar energy (B) Biomass
(C) Producers (D) Carbohydrate in plants
44. The number of primary producers within a specified area would be maximum in
(A) Desert (B) Forest ecosystem
(C) Grassland ecosystem (D) Pond ecosystem
45. Maximum number in pond ecosystem is of
(A) Producers (B) Consumers (C) Top consumers (D) Decomposers
46. 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

47. Food levels in an ecosystem are called
- (A) Trophic levels (B) Consumer levels
(C) Producer levels (D) Herbivore levels
48. The ultimate trophic level of any food chain is made of
- (A) Animals (B) Tertiary consumers
(C) Top carnivore (D) Decomposers
49. In a food chain, animal constitute the
- (A) First trophic level (B) Second trophic level
(C) Last trophic level (D) None of the above
50. Second order consumers are
- (A) All heterotrophs
(B) Animals feeding on plants
(C) Animals preying over herbivorous animals
(D) Larger animals
51. Interlocking of food chains results in:
- (A) Ecological pyramids (B) Food link
(C) Food lock (D) Food web
52. 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
53. The strongest support of organic evolution comes from the study of
- (A) Fossils (B) Comparative anatomy
(C) Embryology (D) Taxonomy
54. The early believe of spontaneous origin of life was disproved by
- (A) Charles Darwin (B) Louis Pasteur
(C) Koch (D) Lederberg

55. The theory of spontaneous generation was given by
 (A) Redi (B) Pasteur (C) Spallanzani (D) Van Helmont
56. Who was one of the greatest advocates of the theory of special creation?
 (A) Huxley (B) Charles Darwin (C) Aristotle (D) Father Saurez
57. 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
58. "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
59. 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
60. Charles Darwin knew of mutations. He called them
 (A) Continuous variations (B) Discontinuous variation
 (C) Sports (D) None of the above
61. The author of the classical work "The origin of life on earth" is
 (A) Darwin (B) Fox (C) Oparin (D) Urey
62. 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
63. 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
64. Formation of large molecules from small nucleoproteins is termed as
 (A) Coacervation (B) Polymerization
 (C) Aggregation (D) All of these
65. Darwin's theory is also known as
 (A) Germinal — selection theory (B) Pangenesis theory
 (C) Special creation theory (D) Spontaneous generation theory

66. The first geological time scale was developed by
 (A) Aristotle (B) Charles Lapworth
 (C) Adam Sedgwick (D) Giovanni Avduina
67. Oparin's Theory is based on
 (A) Artificial synthesis (B) Spontaneous generation
 (C) God's will (D) All of the above
68. 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
69. Which of the following is considered as evolutionary force?
 (A) Inheritance of acquired characters (B) Speciation
 (C) Mutation (D) Natural selection
70. Natural selection means
 (A) Better adaptability (B) Elimination of less adaptation
 (C) Better survival (D) All of the above
71. The most important requirement of evolution is
 (A) Adaptation (B) Mutation
 (C) Sexual reproduction (D) Development abnormality
72. 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
73. 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

74. Phenomenon of 'industrial melanism' demonstrate
 (A) Natural selection (B) Induced mutation
 (C) Geographical isolation (D) Reproductive isolation
75. In a pond ecosystem, the shape of pyramid numbers is
 (A) Upright (B) Inverted (C) Linear (D) Irregular
76. The pyramid of energy is always
 (A) Inverted (B) Upright
 (C) Both upright and inverted (D) Inverted of forest ecosystem
77. How many Zoogeographical regions are there in this world?
 (A) 7 (B) 9 (C) 6 (D) 12
78. Which Zoogeographic region is called as living museum?
 (A) Palaeartic (B) Ethiopian (C) Oriental (D) Australian
79. Who first divided the Zoogeographic regions?
 (A) Sclater (B) Wallace (C) Linnaeus (D) Darwin
80. Reproductive isolation in sympatric speciation develops with a
 (A) Geographic Barrier (B) Barrier to gene flow
 (C) Change in chromosome (D) Barrier to mating
81. Sympatric speciation occurs most commonly in
 (A) Mammals (B) Plants (C) Birds (D) Fishes
82. 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
83. Hardy-Weinberg law is associated with
 (A) Plant disease (B) Eugenics
 (C) Population genetics (D) Embryology
84. 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

85. Ribozyme is
(A) RNA with extra phosphate
(B) RNA without phosphate
(C) RNA without sugar
(D) RNA with enzyme activity
86. Enzymes with different molecular configurations, but with same function are called
(A) Isoenzymes (B) Apoenzymes
(C) Co-enzymes (D) Inducible enzymes
87. Which of the following causes water pollution?
(A) 2,4-D and pesticides (B) Smoke
(C) Automobile exhaust (D) Aeroplane
88. 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
89. DDT causes egg shell thinning in birds Because it inhabits
(A) Magnesium ATPase (B) Calcium ATPase
(C) Carbonic anhydrase (D) Calmodulin
90. 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
91. Minmata 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
92. 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

93. 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
94. 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
95. 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
96. 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
97. Sounds above what level are considered hazardous noise pollution?
- (A) Above 30 db
 - (B) Above 80 db
 - (C) Above 120db
 - (D) Above 100db
98. The most outstanding danger at present for survival of living Beings on earth is
- (A) Glaciation
 - (B) Deforestation
 - (C) Radiation hazards
 - (D) Desertification
99. The term 'Nuclear winter' is associated with
- (A) Nuclear war
 - (B) Nuclear disarmament
 - (C) Nuclear weapon testing
 - (D) Aftermath of a nuclear holocaust
100. Which of the following chemicals causes bone cancer and degeneration of tissues?
- (A) Iodine-131
 - (B) Calcium-40
 - (C) Iodine-127
 - (D) Strontium-90
-