

M.Sc.  
11

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2011.

M.Sc. (ECOLOGY AND ENVIRONMENTAL SCIENCES)

COURSE CODE : 371

Register Number :

\_\_\_\_\_  
*Signature of the Invigilator*  
(with date)

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COURSE CODE : 371

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. What are the respiratory organs in insects?  
 (A) Gills (B) Trachea (C) Lungs (D) Skin
2. The architect of the compound microscope and discoverer of plant cell  
 (A) Robert Hooke (B) Charles Darwin  
 (C) Gregon Mendel (D) Kolliker
3. Plants growing in the full sunlight are called as  
 (A) Sciophytes (B) Halophytes  
 (C) Heliophytes (D) Psilophytes
4. Excess of water escaping from the plants in a liquid form is called  
 (A) transpiration (B) osmosis (C) guttation (D) respiration
5. Final product of anaerobic respiration is  
 (A) methanol (B) pyruvate (C) ethanol (D) starch
6. According to the laws of thermodynamics which of the following can be recycled  
 (A) Both matter and energy (B) Matter, but not energy  
 (C) Neither matter nor energy (D) Energy, but not matter
7. How is carbon transferred from living organisms to the atmosphere?  
 (A) Photosynthesis (B) Cellular respiration  
 (C) Transpiration (D) Decomposition
8. Succession resulting from changes brought about by the organisms themselves, is called  
 (A) autogenic (B) allogenic (C) primary (D) secondary
9. The 'climax pattern' hypothesis, in succession, was proposed by  
 (A) FE Clements (B) RF Daubenmire  
 (C) RH Whittaker (D) SW Watson
10. The deepest zone of the ocean is called  
 (A) Epipelagic (B) Mesopelagic (C) Benthopelagic (D) Bathypelagic
11. Which of the following is not a typical lotic habitat  
 (A) river (B) stream (C) spring (D) swamp

12. A movement is defined as one way inward movement which is known as
  - (A) Migration
  - (B) Immigration
  - (C) Emigration
  - (D) None of the above
13. Which one of the following is produced from mineral oil?
  - (A) Castor oil
  - (B) Kerosene
  - (C) Jjetropa oil
  - (D) Ranseed oil
14. Regulation of the salt concentration in cells and body fluids. This phenomenon is known as
  - (A) osmoregulation
  - (B) osmosis
  - (C) ordination
  - (D) osmotic pressure
15. The limits, for all important environmental features within which individuals of a species can survive, grow and reproduce is known as
  - (A) niche
  - (B) niche packing
  - (C) niche differentiation
  - (D) niche complementary
16. The act of leaving eggs or progeny to be reached by an individual that is not the parent – usually a member of another species is known as
  - (A) brood parasitism
  - (B) parasitism
  - (C) mutualism
  - (D) ammensalism
17. The rate at which oxygen disappears from a sample of water – a measure of deoxygenating ability commonly used as an index of the quality of sewage effluent
  - (A) biological oxygen demand
  - (B) oxygen deficiency
  - (C) sewage treatment
  - (D) none of the above
18. Geological period occurred from
  - (A) c. 240 to 221 million years ago
  - (B) c. 270 to 220 million years ago
  - (C) c. 265 to 223 million years ago
  - (D) c. 263 to 225 million years ago
19. The plants which survive at very low temperature and they can stand very severe long winters. These are the plants of cold and alpine regions which are known as
  - (A) Microtherms
  - (B) Mesotherms
  - (C) Megatherms
  - (D) Hekistotherms

20. The Scientific study of the distribution and abundance of organisms which was defined by  
 (A) Odum (B) Andrewartha  
 (C) Charles J. Kerb (D) Misra
21. An organism that spends only a part of their life cycle as parasite which spends major part of their life as free living organism. This phenomenon is known as  
 (A) permanent parasites (B) facultative parasites  
 (C) definite and Intermediate hosts (D) partial parasites
22. When body temperature of organisms corresponds to environment, they are called  
 (A) poikilothermic (B) endothermic  
 (C) homeothermic (D) endoexothermic
23. Humus of the soil consists of  
 (A) rock or unmodified material (B) only clay particles  
 (C) sand and soil particles (D) decomposed organic matter
24. Predatory-prey models are described by  
 (A) AJ Lotka & V Volterra (B) CB Huffaker  
 (C) CS Holling (D) EP Odum
25. The part of the atmosphere, which is contact with the earth's surface is called  
 (A) Lithosphere (B) Mesosphere  
 (C) Troposphere (D) Thermosphere
26. Kyoto Convention is concerned with  
 (A) oil pollution (B) deforestation  
 (C) terrorism (D) climate change
27. As a result of rising global temperatures following two major impacts are expected  
 (A) Relatively long summers and drier winters.  
 (B) Rise in the sea level and regional climatic changes.  
 (C) Increased water levels in water bodies like lakes and streams but more consistent flooding patterns.  
 (D) Increased water levels in lakes and streams and comparatively larger floodplains.

28. Which of the following is not a component of all the ecosystems?  
 (A) producers (B) decomposers  
 (C) herbivores (D) tertiary consumers
29. If succession starts on a bare rock, it will be first invaded by  
 (A) mosses (B) ferns (C) lichens (D) micro-shrubs
30. Alteration of flowering phenology is termed as  
 (A) respiration (B) transpiration (C) vernalization (D) fertilization
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32. The deepest zone of the ocean is called  
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33. The function of water in photosynthesis is  
 (A) combine with CO<sub>2</sub>  
 (B) absorb light energy  
 (C) supply of electrons in the light-dependent reactions  
 (D) transport H<sup>+</sup> ions in the light-independent (dark) reactions
34. Agar is obtained from  
 (A) Fucus & ficus (B) Ectocarpus & dictyota  
 (C) Gracilaria & Gelidiella (D) Sargasum & tubenaria
35. In the production of rice India occupies  
 (A) First position (B) Second position  
 (C) Third position (D) Fourth position
36. Indian remote sensing satellite is  
 (A) Cartosat (B) Landsat (C) Ikonos (D) Spot
37. Which of the following is the national animal of our country?  
 (A) Lion (B) Elephant (C) Tiger (D) Leopard

38. Smog pollution does not contain  
 (A) Ozone (B) PAN (C) CO (D) NO<sub>2</sub>
39. The persistent pollutants in the food-chain are increased through  
 (A) Bioaccumulation (B) Bioconcentration  
 (C) Bioexcretion (D) Biomagnification
40. Species richness refers to  
 (A) Total no. of reptiles in a park (B) Total no. of species in an area  
 (C) Species interactions (D) Parasitic species
41. Tropical rain forests occur in  
 (A) Polar region, Russia  
 (B) Central Africa, Central & South America, South & South East Asia  
 (C) North America, Russia  
 (D) Deccan Plateau, North America
42. Monoculture means  
 (A) plantation of *Eucalyptus* & *Acacias* (B) bacterial culture  
 (C) plantation of single species (D) mixed crop plantation
43. Gulf of Mannar Biosphere Reserve is known for  
 (A) fresh water resources (B) giant squirrels & Slender loris  
 (C) seagrasses, algae and marine fauna (D) crab-eating macaques
44. Quinine is obtained from  
 (A) Cinnamon (B) Coffee (C) Tea (D) Cinchona
45. C<sub>3</sub> and C<sub>4</sub> pathways are related to  
 (A) nutrient cycles (B) transpiration  
 (C) photosynthesis (D) respiration
46. Fungal association in roots of higher plants is  
 (A) genera Fungorum (B) mushroom  
 (C) mycology (D) mycorrhizae

47. One of the following plant groups is known for rubber source  
 (A) Ericaceae, Cactaceae, Linaceae  
 (B) Euohorbiaceae, Moraceae, Asteraceae  
 (C) Rosaceae, Leeaceae, Malvaceae  
 (D) Annoncaceae, Araceae, Rubiaceae
48. Ornithochorous means  
 (A) study of birds (B) pollination by birds  
 (C) seed dispersal by ants (D) seed dispersal by birds
49. The terms grana and ETP are related to  
 (A) Nucleus and microtubules respectively  
 (B) Chloroplast and mitochondria respectively  
 (C) Golgibodies and lysosome respectively  
 (D) Ribosomes and vacuoles respectively
50. The largest mangrove area in India is  
 (A) Gulf of Mannar (B) Gulf of Combay  
 (C) Sundarbans (D) Palk Strait
51. Nitrogen fixers include  
 (A) blue green algae (B) green algae  
 (C) brown algae (D) red algae
52. Tree trunks of humid forests are clothed with  
 (A) saprophytes (B) parasites (C) epiphytes (D) hydrophytes
53. Phototropism refers to  
 (A) animal movement towards shade (B) animal movement towards light  
 (C) plant movement towards light (D) plant movement towards shade
54. Semi arid crops include  
 (A) Rice, Sugarcane, Banana (B) Mangoes, Apple, Oranges  
 (C) Pines, Oaks, Firs (D) Millets, Peanut, Cotton
55. Hydroponics refer to  
 (A) growing plants in nutrient water (B) growing plants in soil pots  
 (C) growing bacteria in agar medium (D) growing fungi in Petri plates

56. Anemophily & entomophily respectively refer to  
 (A) pollination by animals & water (B) seed dispersal by bats & baboons  
 (C) pollination by wind & insects (D) seed dispersal by wind & insects
57. Green seaweeds include  
 (A) Nostoc, Anabaena, Oscillatoria & Lyngbya  
 (B) Caulerpa, Ulva, Enteromorpha & Chaetomorpha  
 (C) Padina, Dictyota, Ectocarpus & Fucus  
 (D) Ceramium, Gigartina, Gracillaria & Polysiphonia
58. Macrofungal fruit bodies are produced in  
 (A) Zygomycetes & Trichomycetes (B) Deuteromycetes & Oomycetes  
 (C) Phycomycetes & Deuteromycetes (D) Ascomycetes & Basidiomycetes
59. Fossil plants include  
 (A) Lepidodendron, Williamsonia, Mesembryoxylon  
 (B) Lepidagathis, Woodfordia, Memecylon  
 (C) Lagerstroemia, Viscum, Myristica  
 (D) Lentibularia, Vaccinium, Myrica
60. Zoochory refers to  
 (A) zoo chart records (B) zoo park maintenance  
 (C) flower pollination by animals (D) seed dispersal by animals
61. Mangroves are known for  
 (A) sea water inundation, Rhizophora, crabs & prawns  
 (B) fresh water fishes & prawns, Myristicas & Eucalypts  
 (C) hornbills, toucans & musk deer  
 (D) hartebeest, Wallabies & mouse deer
62. Physical & chemical defense against herbivory are  
 (A) Thorns & Total phenols (B) Epidermis & Lipids  
 (C) Vasculature & Glycerol (D) Nectaries & Proteins
63. Tick the unrelated animal group  
 (A) hornbills & toucans (B) sun birds & humming birds  
 (C) kangaroos & wallabies (D) canids & proboscids



64. Wild relatives of species are useful in increasing
- (A) disease treatment of domesticated biota
  - (B) disease resistance in domesticated biota
  - (C) disease induction in domesticated biota
  - (D) disease testing in domesticated biota
65. Commercially cultivated Medicinal resources include
- (A) Aloe, Gloriosa, Vinca
  - (B) Apium, Toona, Musa
  - (C) Alnus, Pandanus, Rhamnus
  - (D) Buxus, Taxus, Hoya
66. Leather industries utilize
- (A) seed lectins & potassium permanganate
  - (B) bark & fruit tannins or chromium sulphate
  - (C) stem latex and sodium citrate
  - (D) root oils and lead nitrate
67. Squirrels are largely
- (A) seed dispersal
  - (B) seed predators
  - (C) seed carnivores
  - (D) seed insectivores
68. Floating & rooted macrophytes of pond ecosystems
- (A) Utricularia - Oenothera; Wolfia - Eichhornia
  - (B) Enhalus - Blyxa & Lemna - Hydrocharis
  - (C) Halophila - Halodule & Eichhornia - Pistia
  - (D) Lemna - Wolfia & Elodia - Vallisneria
69. Some illegally removed forest resources
- (A) citrus, cardamom, beads, etc.
  - (B) sandal, horns, antlers, ivory etc.
  - (C) saffron, salts, ceramics, tobacco etc.
  - (D) neem, cumins, tobacco etc.
70. Leaf fossils are better preserved as
- (A) compression
  - (B) impression
  - (C) sedimentation
  - (D) petrification

71. Conservation areas are prioritised on  
 (A) high diversity, endemism & geographic uniqueness  
 (B) low diversity, wide distribution & geological substrate  
 (C) climate, soil & cultigens  
 (D) human population, climate & soil
72. Estuarine & coastal shelf areas are  
 (A) exposed feeding ground for freshwater fauna  
 (B) exposed feeding group for lepidopterans  
 (C) protected spawning ground for felids  
 (D) protected spawning ground for coastal fauna
73. Epiphytes are common in  
 (A) loranth & mints (B) orchids & bromeliads  
 (C) citrus & cereals (D) oaks & maples
74. Ethology deals with  
 (A) reproduction (B) growth (C) behaviour (D) death
75. The maximum light penetration in the ocean water ranges between  
 (A) 80-100 m (B) 180-200 m  
 (C) 280-300 m (D) none of these
76. Dakshin Gangotri is the name given to the India's Marine Lab at  
 (A) Andaman (B) Himalayas  
 (C) Antarctica (D) Goa
77. Hog fuel is the mixture of  
 (A) dried leaves and seeds (B) dried wood and barks  
 (C) wet leaves and seeds (D) none of these
78. The formation of hole in the ozone layer was first identified over  
 (A) Australia (B) North America  
 (C) Asia (D) Antarctica
79. Respiratory roots are common among  
 (A) grassland (B) mangroves (C) tundra plants (D) cash crops

80. Water vascular system is the characteristic features of  
 (A) annelids (B) fishes (C) echinoderms (D) mollusks
81. Which one of the phylum members are exclusively marine?  
 (A) Annelids (B) Fishes (C) Echinoderms (D) Mollusks
82. Pedogenesis means  
 (A) formation of water droplets (B) formation of soil  
 (C) development of locomotory organs (D) development of skin
83. Lotus belongs to the category of  
 (A) rooted hydrophytes with floating leaves (B) free floating hydrophytes  
 (C) rooted emergent hydrophytes (D) none of these
84. Cyclomorphosis is related to  
 (A) temperature (B) light (C) carbon-di-oxide (D) ozone
85. The zone where the river meets the sea is called  
 (A) backwater (B) lake (C) lagoon (D) estuary
86. Which one the following members produces cysts?  
 (A) white shrimp (B) tiger shrimp (C) brine shrimp (D) none of these
87. UN in its 62<sup>nd</sup> General Assembly proclaimed 2009 as International Year of  
 (A) Botany (B) Genetics (C) Astronomy (D) Astrology
88. Lichens is symbiotic having  
 (A) alga and fungus (B) alga and bacteria  
 (C) bacteria and virus (D) none of these
89. pH of the acid rain is reported to be  
 (A) 7.0 (B) below 7.0 (C) above 7.0 (D) none of these
90. The maximum density of freshwater occurs at  
 (A) 44° C (B) 4° C (C) -44° C (D) -4° C
91. Which of the following terms is not related to thermal stratification?  
 (A) thermocline (B) epilimnion  
 (C) hypolimnion (D) eutrophication

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