

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2012.

M.Sc. (ECOLOGY AND ENVIRONMENTAL SCIENCES)

COURSE CODE : 371

Register Number :

*Signature of the Invigilator
(with date)*

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 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. Which of these groups is at the apex of the food chain?
(A) Herbivores (B) Bacteria (C) Plants (D) Predators
2. The Chi-square test is used
(A) To compare frequency distributions (B) To assess probabilities
(C) To compare sample means (D) To compare variances
3. What are the respiratory organs in insects?
(A) Gills (B) Trachea (C) Lungs (D) Skin
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. Which one of the following is produced from mineral oil?
(A) Castor oil (B) Kerosine (C) Jetropa oil (D) Ranseed oil
9. Kyoto Convention is concerned with
(A) oil pollution (B) deforestation
(C) terrorism (D) climate change
10. 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.

11. The function of water in photosynthesis is
 - (A) combine with CO_2
 - (B) absorb light energy
 - (C) supply of electrons in the light-dependent reactions
 - (D) transport H^+ ions in the light-independent (dark) reactions
12. In the production of rice India occupies
 - (A) first position
 - (B) second position
 - (C) third position
 - (D) fourth position
13. Growing two or more crops simultaneously with no distinct row arrangement is known as
 - (A) mixed cropping
 - (B) mixed intercropping
 - (C) relay cropping
 - (D) alley cropping
14. Individuals of the same species in a particular locality constitute
 - (A) population
 - (B) community
 - (C) flora
 - (D) fauna
15. Dengue is transmitted by
 - (A) Aedes
 - (B) Anopheles
 - (C) Culex
 - (D) None of above
16. Example of poikilotherms is
 - (A) Bird
 - (B) Snake
 - (C) Cow
 - (D) Man
17. Endangering plant species can be multiplied through
 - (A) transgenesis
 - (B) r DNA technology
 - (C) cloning
 - (D) tissue culture
18. The progressive series of changes that eventually produce a climax community on what was once a bare rocky island is an example of
 - (A) primary succession
 - (B) speciation
 - (C) secondary succession
 - (D) evolution
19. In a terrestrial ecosystem, the trophic level that would contain the largest biomass would be the
 - (A) producers
 - (B) primary consumers
 - (C) secondary consumers
 - (D) highest order consumers

20. The most serious environmental effect posed by hazardous wastes is
 - (A) air pollution
 - (B) contamination of groundwater
 - (C) increased use of land for landfills
 - (D) destruction of habitat
21. Groundwater mining in coastal areas can result in
 - (A) decrease in the toxicity of groundwater
 - (B) decrease in the salinity of groundwater
 - (C) increase in the water table
 - (D) increase in the salinity of groundwater
22. One of the best solutions to get rid of non-biodegradable wastes is
 - (A) Burning
 - (B) Dumping
 - (C) Burying
 - (D) Recycling
23. In a lake polluted with pesticides, which one of the following will contain the maximum amount of pesticides?
 - (A) Small fish
 - (B) Microscopic animals
 - (C) Phytoplankton
 - (D) Water birds
24. The fact that viruses are obligate intracellular parasites means that they require a _____ for reproduction.
 - (A) culture dish
 - (B) host cell
 - (C) phenol red broth
 - (D) secondary virus
25. All of the following structures of bacteria contain (or are made of) protein except
 - (A) plasmids
 - (B) ribosomes
 - (C) pili
 - (D) cell membrane
26. The well known fungus genus widely used for controlling plant diseases, is
 - (A) VAM
 - (B) Rhizobium
 - (C) Trichoderma
 - (D) None of these
27. During cell division, the phase at which all chromatids move to the equatorial plane is
 - (A) prophase
 - (B) metaphase
 - (C) anaphase
 - (D) telophase
28. Hydrocarbons are rich in members of the family
 - (A) Malvaceae
 - (B) Fabaceae
 - (C) Musaceae
 - (D) Euphorbiaceae
29. The parameter k in the logistic equation denotes
 - (A) Resources
 - (B) Carrying capacity
 - (C) Sustainability
 - (D) Growth rate

30. A life-table is used to study
 (A) Population processes (B) Animal behaviour
 (C) Human evolution (D) Community structure
31. What does this Conservation Category 'Least Concern' mean?
 (A) Species that has gone extinct
 (B) No danger of extinction in immediate future
 (C) Has been saved from extinction
 (D) No danger of extinction
32. The Dodo, a bird that went extinct a few centuries ago was found in
 (A) Madagascar (B) Mozambique
 (C) Mauritius (D) Maldives
33. The cell wall type that is most vulnerable to the action of penicillin is
 (A) Gram negative (B) Gram positive
 (C) Both (A) and (B) (D) None
34. Animal(s) which is/are active at night
 (A) Owl (B) Rat (C) Cockroach (D) All the above
35. Two or more crops are managed simultaneously in the same field is known as
 (A) intercropping (B) monocropping
 (C) multicropping (D) alley cropping
36. Plant and fungal cell wall are respectively made of
 (A) chitin and creatinin (B) maltose and lactose
 (C) cellulose and chitin (D) glucose and galactose
37. Succession initiating from aquatic environment is
 (A) Hydrosere (B) Xerosere
 (C) Mesosere (D) None of the above
38. Extinct bird of Mauritius island is
 (A) Sunbird (B) Humming bird (C) Dodder (D) Dodo
39. Marine mammals include
 (A) Sea cucumber, corals and polychetes
 (B) Mammoths mouse, deer and marsh crocodile
 (C) Manatees, dugongs and whales
 (D) Caulerpa, Halimeda and Codium

40. Hermaphrodite refers to
- (A) male and female parts in the different flowers of same plant
 - (B) male and female parts in the same flower
 - (C) male and female flowers in separate plants
 - (D) plants with some female and some bisexual flowers
41. Population regulation mechanisms help in
- (A) density reduction and diversity maintenance
 - (B) density increase and diversity reduction
 - (C) diversity and density increase equally
 - (D) diversity and density decrease equally
42. Evolutionary changes in floral morphology influence evolutionary changes in Pollinator morphology and vice versa. This type of evolution is known as
- (A) Evolutionary ecology
 - (B) Ecological evolution
 - (C) Co-evolution
 - (D) Macroevolution
43. Major wetlands include
- (A) bogs, marshes, mangroves and swamps
 - (B) oceans, continental shelf rivers and streams
 - (C) lakes, ponds and puddles
 - (D) rivers, streams and ponds
44. Tick the related mammal group
- (A) manatees, elks and cheetah
 - (B) musk deer, otters and lion
 - (C) capibara, elands and bats
 - (D) mammoths, elephants and tapirs
45. Exotic plants exhibit
- (A) slow growth and low-nutrient efficiency
 - (B) fast growth and high-nutrient efficiency
 - (C) slow elongation and growth
 - (D) none of the above
46. Major determinants of global distribution of biomes include
- (A) altitude, latitude, and longitude
 - (B) temperature and rainfall
 - (C) soil and rainfall
 - (D) temperature and altitude

47. Conservation areas are prioritised based on
 (A) high species diversity, endemism and geographic uniqueness
 (B) low diversity, wide distribution and geological substrate
 (C) climate, soil and cultigens
 (D) human population, climate and soil
48. Deforestation reduces _____ and increases _____.
 (A) CO₂ uptake in Photosynthesis, and global warming
 (B) O₂ uptake in respiration and guttation
 (C) N uptake and Photosynthesis
 (D) P uptake and transpiration
49. Hydrochory refers to
 (A) Pollination by water
 (B) Seed dispersal by water
 (C) Absorption of water
 (D) Elimination of water
50. Mercury pollution causes the disease called minamata which affects
 (A) lymphatic
 (B) nervous system
 (C) respiratory system
 (D) ophthalmic complex
51. Plant growth substances include
 (A) Adenine, Guanine, Cytosine
 (B) Sporopollenin, Chlorophyll
 (C) Auxin, Gibberellin Cytokinin
 (D) Nitrogen, Phosphorus, Potassium
52. Causes of coastal pollution include
 (A) oil-spills, effluents solid dumps, etc
 (B) oil-extraction, aquaculture agriculture etc
 (C) over-exploitation of fishery resources
 (D) under-utility of fishery resources
53. 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
54. Tick the odd item
 (A) Corals, Sponges, Fishes
 (B) Oaks, Teak, Sal
 (C) Camel, Lizards, Spiders
 (D) Palms, Ginger, Orchids

55. Anemophily and Chiropterophily respectively refer to
 (A) pollination by animals and water (B) seed dispersal by bats and baboons
 (C) pollination by winds and bats (D) seed dispersal by wind and insects
56. Organisms reproducing once in life time are respectively referred in plants and animals as
 (A) monocarpic and semelparous (B) polycarpic and iteroparous
 (C) monophyletic and polyphyletic (D) viviparous and semelparous
57. Indian Remote Sensing satellite is
 (A) Cartosat (B) Landsat (C) Spot (D) Ikonos
58. Annelids includes
 (A) Flat worm (B) Round worm (C) Earth worm (D) Blood worm
59. Study of chromosomes is
 (A) Dendrology (B) Cytology (C) Karyology (D) Chronology
60. Tick the set of invasive weeds
 (A) Pine, fir, linden (B) Teak, sal, red sanders
 (C) Lantana, Eichhornia, Chromolaena (D) Gnetum, Connarus, Derris
61. Biodiversity is dealt at three levels
 (A) Ecosystem, climate and soils
 (B) Ecosystem species and tissue systems
 (C) Genes, species and ecosystem
 (D) Genes, cells and tissue systems
62. Tick the order indicating increasing rainfall
 (A) cold deserts, hot deserts, grasslands
 (B) rainforests, savannas and deciduous forests
 (C) grasslands, rainforests and deserts
 (D) deserts, savannas, deciduous and evergreen forests
63. Physical and chemical defense against herbivory are
 (A) Thorns and Total phenols (B) Epidermis and Lipids
 (C) Vasculature and Glycerol (D) Nectaries and Proteins

64. Representatives of four major Arthropod classes include
 (A) canids, felids and bovids
 (B) annelids, centipedes and polychaetes
 (C) millepedes, crabs, lepidopterans and arachnids
 (D) nematodes, earthworms and corals
65. CAM plants open stomata in
 (A) day time to transpire
 (B) night time to economise water
 (C) summer to respire
 (D) winter to avoid evaporation
66. Water and food conducting tissues include
 (A) Parenchyma and Aerenchyma
 (B) Chlorenchyma and Collenchyma
 (C) Xylem and Phloem
 (D) Cambium and stomium
67. Sustainable use of resources would refer to
 (A) optimal resource harvest within regenerative potential of species
 (B) maximal resource harvest in all seasons
 (C) resource harvest at long time intervals or resource harvest at all
 (D) no resource harvest at all
68. Important shelter belt species for coastal protection include
 (A) Spinifex, Casuarina
 (B) Teak, Ixora
 (C) Cinnomon, Verbena
 (D) Salix, Fagus
69. Endemics are
 (A) species with wide distribution
 (B) species with restricted distribution
 (C) biomes of wide range
 (D) biomes of narrow range
70. Attractive macrofungal fruit bodies are basically made of
 (A) Mycelium
 (B) Cambium
 (C) Cellulose
 (D) Lignin
71. Methods of fossilization include
 (A) sublimation, impression, predation and dispersion
 (B) sedimentation, impression, compression and petrification
 (C) nitrification, cryopreservation, compression and pollination
 (D) denitrification, crystallization, fossilization and preservation
72. Leather industries utilize
 (A) seed lectins and potassium permanganate
 (B) bark and fruit tannins or chromium sulphate
 (C) stem latex and sodium citrate
 (D) root oils and lead nitrate

73. One of the following plant groups is known for spice source
 (A) Ericaceae, Cactaceae, Linaceae
 (B) Euohorbiaceae, Moraceae, Asteraceae
 (C) Annonaceae, Leeaceae, Malvaceae
 (D) Lauraceae, Myrtaceae, Zingiberaceae
74. The architect of the compound microscope and discoverer of plant cell
 (A) Robert Hooke (B) Charles Darwin
 (C) Gregon Mendel (D) Kolliker
75. Plants growing in the full sunlight are called as
 (A) Sciophytes (B) Halophytes (C) Heliophytes (D) Psilophytes
76. Population around cement industry are largely affected by
 (A) Cordiac diseases (B) Pulmonary diseases
 (C) Eye diseases (D) Urinary diseases
77. Transgenics are known to be
 (A) Disease-prone (B) Disease-resistant
 (C) Disease-inducive (D) Disease-promotive
78. Wingless insect is
 (A) Moths (B) Beetles (C) Silverfish (D) Dipterans
79. Commercially cultivated Medicinal resources include
 (A) Aloe, Gloriosa, Vinca (B) Apium, Toona, Musa
 (C) Alnus, Pandanus, Rhamnus (D) Buxus, Taxus, Hoya
80. Succession resulting from changes brought about by the organisms themselves, is called
 (A) Autogenic (B) Allogenic (C) Primary (D) Secondary
81. The 'climax pattern' hypothesis, in succession, was proposed by
 (A) FE Clements (B) RF Daubenmire
 (C) RH Whittaker (D) SW Watson
82. The deepest zone of the ocean is called
 (A) Epipelagic (B) Mesopelagic
 (C) Benthopelagic (D) Bathypelagic

83. Which of the following is not a typical lotic habitat?
 (A) River (B) Stream (C) Spring (D) Swamp
84. A movement is defined as one way inward movement Which is known as
 (A) Migration (B) Immigration
 (C) Emigration (D) None of the above
85. Weed control is achieved by
 (A) Cytological Physiological and embryological means
 (B) Mechanical, chemical and biological means
 (C) Pathological karyological and Cytological means
 (D) Chronological, cytological and astrological means
86. Regulation of the salt concentration in cells and body fluids. This phenomenon is known as
 (A) Osmoregulation (B) Osmosis
 (C) Ordination (D) Osmotic pressure
87. 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
88. 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
89. 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
90. 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
91. 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

92. The arithmetic mean is
 (A) A parameter of dispersion (B) A measure of central tendency
 (C) A sample (D) Variance of sample
93. 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
94. When body temperature of organisms corresponds to environment, they are called
 (A) Poikilothermic (B) Endothermic
 (C) Homeothermic (D) Endoexothermic
95. Humus of the soil consists of
 (A) Rock or unmodified material (B) Only clay particles
 (C) Sand and soil particles (D) Decomposed organic matter
96. Predatory-prey models are described by
 (A) AJ Lotka and V Volterra (B) CB Huffaker
 (C) CS Holling (D) EP Odum
97. The part of the atmosphere, which is contact with the earth's surface is called
 (A) Lithosphere (B) Mesosphere
 (C) Troposphere (D) Thermosphere
98. Pathogenic protozoans include
 (A) Nostoc, Anabaena etc. (B) Noctileuca, Paramecium etc.
 (C) Entamoeba, Plasmodium etc. (D) Chlorella, Chlamydomonas etc.
99. In post-fertilization stage ovary, ovule & zygote respectively develop into
 (A) Seed, embryo and fruit (B) Seed, endosperm and perisperm
 (C) Fruit, seed and embryo (D) Embryo, endosperm and fruit
100. What are alleles?
 (A) Alternate forms of the same gene on homologous chromosomes
 (B) A codon
 (C) Structural genes
 (D) Proteins
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