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. Which country has no native terrestrial mammals?
   (A) Greenland        (B) New Zealand
   (C) Mongolia         (D) China

2. Phenotypical ratio of F2 hybrid plants in dihybrid cross of Mendel
   (A) 9:3:3:1          (B) 9:3:1:3
   (C) 3:3:3:1          (D) 3:1

3. 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

4. Hydrochoric refers to
   (A) pollination by water          (B) seed dispersal by water
   (C) absorption of water           (D) elimination of water

5. Theory of inheritance of acquired characters was put forward by
   (A) Lamarck                    (B) Darwin
   (C) Mendel                     (D) Bateson

6. Plant growth substances include
   (A) Adenine, Guanine, Cytosine   (B) Sporopollenin, Chlorophyll
   (C) Auxin, Gibberellin, Cytokinin (D) Nitrogen, Phosphorus, Potassium

7. 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

8. What are the respiratory organs in insects
   (A) gills                  (B) trachea
   (C) lungs                  (D) skin
9. The standard deviation is:
   (A) A parameter of distribution   (B) A measure of dispersion
   (C) A measure of central tendency   (D) Skewness

10. 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

11. 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

12. Excess of water escaping from the plants in a liquid form is called
    (A) transpiration
    (B) osmosis
    (C) guttation
    (D) respiration

13. Final product of anaerobic respiration is
    (A) methanol
    (B) pyruvate
    (C) ethanol
    (D) starch

14. 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

15. Tick the set of invasive weeds
    (A) Pine, fir, linden
    (B) Teak, sal, red sanders
    (C) Lantana, Eichhornia, Chromolaena
    (D) Gnetum, Connarus, Derris

16. What is meant by demography?
    (A) The age distribution of populations
    (B) Growth curves of populations
    (C) Factors that affect birth and death of populations
    (D) The distribution and abundance of animals
17. 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

18. Physical and chemical defense against herbivory are
   (A) Thorns and Total phenols    (B) Epidermis and Lipids
   (C) Vasculature and Glycerol    (D) Nectaries and Proteins

19. 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

20. Which one of the following is produced from mineral oil?
   (A) Castor oil
   (B) Kerosine
   (C) Jetropa oil
   (D) Ranseed oil

21. Kyoto Convention is concerned with
   (A) oil pollution
   (B) deforestation
   (C) terrorism
   (D) climate change

22. 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

23. Important shelter belt species for coastal protection include
   (A) Spinifex, Casuarina
   (B) Teak, Ixora
   (C) Cinnomon, Verbena
   (D) Salix, Fagus

24. Endemics are
   (A) species with wide distribution
   (B) species with restricted distribution
   (C) biomes of wide range
   (D) biomes of narrow range
25. 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.

26. Methods of fossilization include
   (A) Sublimation, impression, predation and dispersion
   (B) Sedimentation, impression, compression and petrification
   (C) Nitrification, cryopreservation, compresseion and pollination
   (D) Denitrification, crystallization, fossilization and preservation

27. 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

28. The function of water in photosynthesis is
   (A) combine with CO2
   (B) absorb light energy
   (C) supply of electrons in the light-dependent reactions
   (D) transport H+ ions in the light-independent (dark) reactions

29. When body temperature of organisms corresponds to environment, they are called
   (A) Poikilothermic
   (B) Endothermic
   (C) Homeothermic
   (D) endoexothermic

30. The type I error is to:
   (A) Reject the test when it is wrong
   (B) When H₀ > H
   (C) Accept H₀ when it is wrong
   (D) Reject H₀ when it is true

31. Which of the following is not a component of all the ecosystems
   (A) producers
   (B) decomposers
   (C) herbivores
   (D) tertiary consumers
32. Echinoderms include
   (A) finfish, bivalves and gastropods
   (B) shellfish, gastropods and oysters
   (C) star fish, sea urchins and sea cucumbers
   (D) clams, prawns and shrimps

33. 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

34. 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

35. 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

36. Succession initiating from aquatic environment is
   (A) hydrosere  (B) xerosere
   (C) mesosere  (D) none of the above

37. The deepest zone of the ocean is called
   (A) epipelagic  (B) mesopelagic
   (C) benthopelagic (D) bathypelagic

38. Which of the following terms is not related to thermal stratification
   (A) thermocline
   (B) epilimnion
   (C) hypolimnion
   (D) eutrophication

39. Individuals of the same species in a particular locality constitute
   (A) population   (B) community
   (C) flora        (D) fauna

40. Smog pollution does not contain
   (A) Ozone    (B) PAN   (C) CO   (D) NO₂
41. Dengue is transmitted by
   (A) aedes  (B) anopheles
   (C) culex  (D) none of above

42. Which one of the following is a major constituent of Biogas?
   (A) Methane  (B) Carbohydrates
   (C) Hydrogen  (D) Nitrogen dioxide

43. The use of living organisms to degrade the environmental pollutants or to prevent pollution through waste water treatment is known as
   (A) phytoremediation  (B) remediation
   (C) bioremediation    (D) none of the above

44. Example of poikilotherms is
   (A) bird  (B) snake
   (C) cow   (D) man

45. A sudden uncontrolled descend of a mass of earth under the force of gravity is called
   (A) soil erosion  (B) mining
   (C) landslide  (D) earth quake

46. India has second largest reserve of _________ after Brazil
   (A) iron ore  (B) bauxite
   (C) coal  (D) copper

47. The dissipation of energy during its transmission from one trophic level to another is in agreement with
   (A) first law of thermodynamics
   (B) second law of thermodynamics
   (C) third law of thermodynamics
   (D) none of the above

48. The graphical representation of the interrelation of producer and consumer in an ecosystem is termed as
   (A) ecological niche  (B) ecological pyramid
   (C) trophic levels  (D) food web

49. Species with restricted geographical distribution over relatively small range is called
   (A) endangered species  (B) extinct species
   (C) endemic species  (D) threatened species
50. ________________ give an empirical value to water quality and is a parameter for the organic matter present in water
   (A) BOD  (B) COD  (C) DO  (D) All the above

51. The process of conversion of electricity (energy) from waste is called
   (A) pyrolysis  (B) vermicomposting
   (C) sanitary landfill  (D) plastic recycling

52. Endangering plant species can be multiplied through
   (A) transgenesis  (B) rDNA technology
   (C) cloning  (D) tissue culture

53. 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

54. In a terrestrial ecosystem, the trophic level that would contain the largest biomass would be the
   (A) producers  (B) primary consumers
   (C) secondary consumers  (C) highest order consumers

55. 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

56. Extinct bird of Mauritius island
   (A) sunbird  (B) humming bird  (C) dodder  (D) dodo

57. Marine mammals include
   (A) sea cucumber, corals and polychetes
   (B) mammoths, mouse, deer and marsh crocodile
   (C) manatees, dugongs and whales
   (D) caulapa, halimeda and codium
58. 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

59. 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

60. 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.

61. In which of the following ecosystem an ecological pyramid of energy flow is often an inverted one
   (A) ocean  (B) tundra  (C) rainforest  (D) desert

62. One of the best solutions to get rid of non-biodegradable wastes is
   (A) burning  (B) dumping  (C) burying  (D) recycling

63. 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

64. 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
65. 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

66. 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

67. The largest mangrove area in India is
   (A) Gulf of Mannar  (B) Gulf of Cambay  (C) Sundarbans  (D) Palk Strait

68. Anemophily and entomophily respectively refer to
   (A) pollination by animals and water
   (B) seed dispersal by bats and baboons
   (C) pollination by wind and insects
   (D) seed dispersal by wind and insects

69. Macrofungal fruit bodies are produced in
   (A) Phycomycets and Deuteromycetes  (B) Ascomycetes and Basidiomycetes
   (C) Zygomycetes and Trichomycetes  (D) Deuteromycets and Oomycetes

70. Weed control is achieved by
   (A) cytological, physiological and embryological means
   (B) mechanical, chemical and biological means
   (C) pathological, karyologocal and cytological means
   (D) chronological, cytological and astrological means

71. Endozoochory involves fruit processing by
   (A) ingestion, digestion and egestion
   (B) injection, extraction and sedimentation
   (C) impression, compression and petrification
   (D) expression, suppression and consumption

72. Root nodules with N2 fixers occur in
   (A) cereals and cinnamons  (B) casuarinas and legumes
   (C) cassytha and mints  (D) cassava and sedges
73. 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

74. Floating and rooted macrophytes of pond ecosystems
   (A) Utricularia - Oenothera; Wolfia - Eichhornia
   (B) Enhalus - Blyxa and Lemna - Hydrocharis
   (C) Halophila - Halodule and Eichhornia - Pistia
   (D) Lemna - Wolfia and Elodia - Vallisneria

75. Two hottest hot spots of Biodiversity in Indian subcontinent include
   (A) Western Ghats-Sri Lanka - Indo Burma
   (B) Eastern Ghats - Aravallis
   (C) Coromandel coast – Gangetic plains
   (D) Sundarbans and Point Calimere

76. Orderly arrangement of 4 major algal group representatives include
   (A) Chara, Cyclotella, Codium, Ulva
   (B) Anabaena, Cycas, Pinus, Gnetum
   (C) Nostoc, Ulva, Padina, Polysiphonia
   (D) Mangifera, Moringa, Ficus and Fucus

77. Monoculture means
   (A) plantation of single species  (B) mixed crop plantation
   (C) plantation of Eucalyptus and Acacias  (D) bacterial culture

78. Gulf of Mannar Biosphere Reserve is known for
   (A) fresh water resources  (B) giant squirrels and Slender loris
   (C) seagrasses, algae and marine fauna  (D) crab-eating macaques
79. One of the following plant groups is known for fibre source
   (A) sal, tendu, bamboo  (B) jute, Hemp, Agave
   (C) oak, fir, balsam    (D) avacado, mint, pine

80. Tree trunks of humid tropical forests are clothed with
   (A) Saprophytes  (B) Parasites  (C) Epiphytes  (D) Hydrophytes

81. Largest leaf and flower respectively are known in
   (A) Vanda teesselata and Russelia
   (B) Vaccinium neigherrense and Rhamnus
   (C) Victoria amazonica and Rafflesia
   (D) Viscum orientale and Ruscus

82. Transgenics are known to be
   (A) disease-prone  (B) disease-resistant
   (C) disease-inducive  (D) disease-promotive

83. 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

84. Transitional zone between two adjacent habitats is referred as
   (A) ecotone  (B) ecological niche  (C) ecesis  (D) euphotic zone

85. IUCN's collection of available data of threatened species is named
   (A) IUCN Bulletin  (B) Red data book
   (C) IUCN Manual  (D) Monograph
86. Water-borne diseases due to contaminated water include
   (A) Cholera, Typhoid, Diarrhea, Hepatitis
   (B) Swine flu, Viral fever
   (C) Blood cancer, Brain tumour
   (D) Epilepsy, Arthritis

87. Summer leaflessness of trees is common in
   (A) coniferous forests                  (B) tropical deciduous forests
   (C) temperate deciduous forests        (D) tundras

88. An example of co-evolution of plants and animals is
   (A) figs and their pollinator wasps     (B) ixora and bats species
   (C) conifers and Macaques              (D) teak and moths

89. Producers in pond ecosystem include
   (A) Halophytes and Oaks
   (B) Mesophytes and macro fungi
   (C) Pines and zooplanktons
   (D) Rooted and floating hydrophytes and phytoplankton's

90. Treeless vegetation characteristic of
   (A) Savannas                             (B) Taigas
   (C) Tundras                             (D) Mangroves

91. Riparian ecosystems refers to
   (A) hill top forests                    (B) cloud forests
   (C) reed forests                       (D) forests fringing river systems

92. Cell immobilization technique is facilitated using
   (A) Potassium permanganate              (B) Sodium alginate
   (C) Sodium chloride                     (D) Calcium carbide
93. Genetic diversity can be detected by
   (A) iso-enzyme analysis   (B) co-enzyme analysis
   (C) protein synthesis    (D) photosynthetic ability

94. Sources of precipitation include
   (A) ponds and lakes      (B) lakes and reservoirs
   (C) throughfall and stem flow (D) rainfall, dew, snow, fog

95. Tree rings are distinct in
   (A) tropical species due to indistinct seasonality
   (B) temperate species due to distinct seasonality
   (C) subtropics due to moisture
   (D) subtropics due to high illumination

96. Palms characteristically possess
   (A) thick fibrous roots, caudex and spadix,
   (B) thin tap roots, caudicle and spikes
   (C) drupes, firs and cymes
   (D) berries, spruce and thyrses

97. Tick the odd item
   (A) Photosynthesis  (B) CO₂ in take  (C) Chlorophyll  (D) Respiration

98. Desertification refers to
   (A) forest degrading to dense taiga
   (B) forest improving to tundras
   (C) forest improving to deserts
   (D) forest degrading to sparse vegetation

99. Seed dormancy is common in
   (A) water-stressed ecosystems  (B) nutrient-stressed ecosystems
   (C) mangrove ecosystem        (D) all ecosystems

100. What does the parameter ‘r’ stand for in a logistic equation?
    (A) Reproductive output  (B) Rate of increase
     (C) Ratio                (D) Relative frequency