PG and Research Department of Botany

Ecology and Phytogeography

K1 level questions

1. Which of the following is a constituent of eco-system?
   a) Plants
   b) Birds
   c) Animals
   d) All of these

2. What kind of Eco-system is known as sustainable?
   a) The one in which all species are in balance
   b) The one in which there are no animals
   c) The one in which animals feed on each other
   d) All of these

3. An Eco-System comprises of
   a) Living organisms
   b) Non-living organisms
   c) Both living and non-living organisms
   d) Only plants

4. Which of the following statement is TRUE?
   a) Eco-Systems may vary in size
   b) Eco-Systems are always very large
   c) Eco-Systems are always very small.
   d) None of these is true.

5. If one part of Eco-System is damaged, what happens?
   a) It doesn't have any impact on the Eco-system
   b) It completely destroys the eco-system
   c) It has an impact on everything else in the eco-system
   d) All of these

6. Expand GIS
   a) **Geographical Information System** b) Geographical Information Source,
   c) Geological Information System d) Geological Index System

7. MoEF means
   a) Ministry of Forest and Energy b) **Ministry of Environment and Forests**
   c) Ministry of Fuel and Energy, d) Management of Environment and Forestry

8. What is true of ecosystem?
(a) primary consumers are least dependent upon producers
(b) primary consumers out-number producers
(c) producers are more than primary consumers
(d) secondary consumers are the largest and most powerful.

9. in an ecosystem, which one shows one-way passage
(a) free energy (b) carbon (c) nitrogen (d) potassium.

10. Green house effect is warming due to
(a) infra-red rays reaching earth
(b) moisture layer in atmosphere
(c) increase in temperature due to increase in carbon dioxide concentration of atmosphere
(d) ozone layer of atmosphere

11. The final stable community in ecological succession is
a) Climax b) Sere c) Pioneers d) Carnivores

12. A high Biological Oxygen Demand (BOD) indicates that
a) Water is pure b) Low level of microbial pollution
c) Absence of microbial action d) **High level of microbial pollution**

13. Member of the same species living in the same/different area is
a) **Population** b) Community c) Ecosystem d) Habitat

14. Which of the following is not an air pollutant?
a) Smoke b) Carbon dioxide c) **Nitrogen gas** d) Sulphur dioxide

15. The branch of biology dealing with interactions among organisms and between organisms and their environment is called
a) Economy b) Recycling c) Modeling d) **Ecology**

16. Edaphic factor refers to:
a) Water b) **Soil** c) Relative humidity d) Atmosphere

17. Member of the different species living in the same/different area is
a) Population b) **Community** c) Ecosystem d) Habitat

18. The total amount of living tissue within a given trophic level is called
a) Organic mass b) Energy mass c) Trophic mass d**) Biomass**

19. Which of these is a limiting factor for plant distribution?
a) Temperature b) Rainfall c) Nutrients **d) All of the above**

20. Formation of ozone hole is maximum over
a) Antartica b) Africa c) China d) India

21. Ozone layers found in
a) Mesosphere b) Ionosphere c) **Stratosphere** d) Exosphere

22. Too much or too little of any ecological factor can limit or prevent growth of an organism is called
a) Limiting Factor b) Growth Factor c) Co Factor d) None of the above

23. The solid component of the Earth is called
a) **Lithosphere** b) Biosphere c) Hydrosphere d) Atmosphere

24. The resources that can be replaced by natural ecological cycle is called
a) Renewable b) non-renewable c) exhaustible d) natural

25. The portion of the earth and its environment which can support life is known as
a) Crust b) **Biosphere** c) Exosphere d) atmosphere

26. What is called for the term in which all the living organisms that occupy an area undergoing primary succession in the beginning stages?
a) Climax community
b) Settled community
c) Dense community
d) Pioneer community

27. Which process occurs after a volcanic eruption?
a) Primary succession
b) Secondary succession
c) Nitrogen fixation
d) Oxidation

28. Which of the following is/are the by-products of decomposers?
a) water
b) carbon dioxide
c) phosphorous
d) all of the above

29. The branch of biology dealing with interactions among organisms and between organism and their environment is
a) economy
b) modeling
c) recycling
d) **ecology**

30. Which of the following descriptions about the organization of an ecosystem is correct?
    a) communities make up species, which make up populations
    b) populations make up species, which make up communities
    c) species make up communities, which make up populations
    d) **species make up populations, which make up communities**

31. Only 10% of the energy stored in an organism can be passed on to the next trophic level. Of the remaining energy, some is used for the organisms life processes, and the rest is
    a) used in reproduction
    b) stored as fat
    c) stored as body tissue
    d) eliminated as heat

32. The event that can occur after a lake receives a large input of nitrogen from fertilizers is
    a) **an algal bloom**
    b) algae begin to die and decomposers take over
    c) nitrogen compounds are recycled
    d) the concentration of oxygen drops below
33. Each of the following is an abiotic factor in the environment except
    a) plant life b) rainfall c) soil type d) temperature

34. A symbiosis in which both species benefit is
    a) commensalism **b) mutualism** c) predation d) parasites

35. The symbiotic relationship between a flower and the insect that feeds on its nectar (providing pollination and growth for the flower) is an example of
    a) mutualism because the flower provides the insect with food, and the insect pollinates the flower
    b) parasitism because the insect lives off the nectar from the flower
    c) commensalism because the insect does not harm the flower and the flower does not benefit
    d) predation because the insect feeds on the flower.

36. Primary succession can begin after
    a) algae bloom b) farm land Is abandoned **c) a lava flow** d) a thunderstorm

37. What is the difference between primary and secondary succession?
    a) primary succession is slow and secondary succession is rapid
    b) secondary succession begins on soil and primary succession begins on newly exposed surfaces
    c) Primary succession modifies the environment and secondary succession does not
    d) Secondary succession begins with lichens and primary succession begins with trees

38. Which of the following tells you population density?
    a) the number of births per year
    b) the number of frogs
    c) the number of deaths per year
    d) **the number of bacteria per square millimeter**

39. Which are the two ways population can decrease in size?
    a) immigration and emigration
    b) increased death rate and immigration
    c) **decreased birthrate and emigration**
    d) emigration and increased birthrate

40. A relationship in which one organism is helped and another is neither helped nor hurt is called
    a) parasitism b) mutualism c) competition **d) commensalism**

41. The relationship between a tick and its host is an example of
    a) mutualism **b) parasitism** c) competition d) commensalism

42. Limiting factors that depend on population size are called
    a) density- dependent limiting factor
    b) density-independent limiting factor
    c) predator-prey relationship
    d) primary succession

43. What do you mean by conservation?
    a) It means the protection, preservation, management, or restoration of wildlife and natural resources such as forests and water.
    b) It means an ethic of resource use, allocation, and protection.
    c) Only A
    d) Both A & B

44. Which of the following agency published the Red data book?
    a) IUCN
    b) NEERI
    c) NWAP
    d) CITES

45. Find out the correct definition of 'Biodiversity'.
    a) **The variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable.**
    b) It encompasses the interaction of all living species. Climate, weather, and natural resources that affect human survival and economic activity.
    c) Both A & B
    d) None of the above

46. An example of lotic system
(a) Pond b) **River** c) Lake d) Reservoir

47. Complex interlinked food chains are called
(a) **Food Web** (b) Food net work (c) Trophiclevels (d) Food pyramid

48. The material that constitutes the earth's surface plates is the
a) asthenosphere
b) mesosphere
c) thermosphere
d) lithosphere

49. The person to propose the hypothesis of continental drift in 1911 was
a) Wegener **b)** Hess c) Richter d) Dewey e) Wilson

50. The supercontinent composed of all the major continents joined together in the
a) Precambrian
b) Cenozoic
c) Paleozoic
d) Mesozoic

51. The breakup of the above supercontinent occurred in the
a) Precambrian
b) Cenozoic
c) Paleozoic
d) Mesozoic

52. The zone of plastic flow in the mantle is known as the
a) asthenosphere
b) Benioff zone
c) lithosphere
d) mesosphere
e) none of the above

53. Gondwanaland and Laurasia merged to form
a) South America
b) Asia
c) North America
d) Eurasis
e) none of the above

54. Evidence for the former connection of Gondwana's fragments include
    a) identical fossil reptiles and plants
    b) nearly identical sequences of Gondwana succession
    c) similar history of continental glaciation
    d) all of the above
    e) none of the above since little supports the connections

55. The earth's outer core is
    a) **liquid**
    b) solid

56. New ocean floor is created (use two answers)
    a) at convergent boundaries
    b) at divergent boundaries
    c) at transform faults
    d) in subduction zones

57. Forces at a convergent boundary are dominantly
    a) tensional
    b) shear
    c) compressional

58. The process in which an oceanic plate slides beneath a continental plate or another oceanic plate is known as
    a) exfoliation
    b) degradation
    c) tectonism
    d) subduction

59. The zone of earthquake foci that develops as one plate is forced beneath another
    a) focal horizon
    b) Benioff zone
    c) hot spot
    d) plume
    e) none of the above

60. Divergent plate boundaries are characterized by
    a) earthquakes
    b) volcanism
    c) creation of new ocean floor
    d) all of above
    e) none of the above

61. Divergent boundaries are
    a) constructive
    b) destructive
    c) conservative

62. At transform boundaries movement between the plates is
    a) towards one another
    b) away from one another
    c) horizontal, with plates moving past one another

63. In a chain of oceanic volcanic islands that increase in age away from the site of active volcanism, the active volcanism is assumed to occur above
    a) a subduction zone
    b) a granite batholith C. a Benioff zone
    c) a plume of molten rock called a hot spot

64. A strong positive magnetic anomaly is due to
    a) sedimentation
    b) normal polarity during formation of ocean floor
    c) reversed polarity during the formation of ocean floor
    d) subduction

65. During a period of magnetic reversal, a compass needle would point towards the
    a) north magnetic pole
    b) south magnetic pole

66. In the embryonic stage of a Wilson cycle (use all correct answers)
    a) subduction occurs
    b) rifting occurs
    c) mountains are elevated
    d) grabens form
    e) there is possible volcanism with crustal thinning

67. In the youthful stage of a Wilson cycle (use all correct answers)
    a) subduction occurs
    b) linear seas form
    c) new ocean floor is being created
    d) convergence is prominent

68. In the mature stage of a Wilson cycle (use all correct answers):
    a) the ocean is widening
    b) grabens form on continents
    c) a new linear sea is forming
    d) no volcanism is present
    e) none of above

69. When two continental plates collide (use all correct answers)
    a) subduction occurs
    b) mountain building occurs
    c) oceans are destroyed
    d) earthquakes occur
    e) volcanism is common

70. The San Andreas fault zone in California is an example of _____ plate boundary
    a) divergent
    b) transform
    c) convergent
    d) none of above

71. Evidence for the desiccation of the Mediterranean Sea includes
    a) salt deposits
    b) volcanism
    c) gypsum deposits
    d) A and B of above
    e) A and C of above

72. Small continental masses, volcanics and sediments transported by plate movements which collide with continental material across a plate boundary are called
    a) exotic terranes
    b) ventifacts
    c) seamount
    d) batholith
    e) aligned volcanic chains

73. Chains of volcanic islands adjacent to deep sea trenches and volcanoes parallel to continental margins or trenches are located above
    a) mid-oceanic ridges
    b) grabens
    c) transform faults
    d) subduction zones

74. Possible cause for plate movements include
    a) plumes
    b) hot spots
    c) convection currents in the mantle
    d) none of above

75. Biome is
    a) a part of the earth and its atmosphere which inhabits livings organisms
    b) a community of organisms interacting with each other
    c) the fauna and flora on land
    d) the fauna and flora on ocean

76. Soil particles are arranged in order of increasing size are
    a) sand, silt and clay
    b) silt, sand and clay
    c) clay, sand and silt
    d) clay, silt and sand

77. The most polluted city in the world is
    a) Tokyo
    b) New York
    c) Calcutta
    d) Mexico
    e)

78. In a food-chain, the saprophytic organisms are
    a) producers
    b) consumers
    c) predators
    d) decomposers

79. The term "ecosystem" was first proposed by
    a) A.G. Tansely
    b) H.T. Odum
    c) Karl Mobius
    d) None of these

80. Plants growing on sea shores show characters of
    a) hydrophytes
    b) mesophytes
    c) xerophytes
    d) halophytes

81. The amount of organic matter present at a given time per unit area is called
    a) Standing crop b) Standing quality c) Carbon content d) Carbon footprint

82. Any features of an organism or its part which enable it to exist under conditions of its habitat is known
    a) adaptive variation b) Adjustment c) Acclimatization **d) Adaptation**

83. Among the following which is the best indicator of water pollution due to mixing of human faeces
    a) *Paramecium* b) *Bacillus* c) *Trypanasoma* d) ***E. coli***

84. Hot spots are primarily designated on basis
    a) **Endemism** b) Species diversity c) Area covered species d) Flowering plant species

85. In ecology, the term biocenosis specifically explains
    a) Ecological study of community
    b) Ecological study of individual species
    c) A group of organism inhabiting a particular area
    d) A group of many species of plants and animals living together in a natural area

86. Which of the following specify the decomposed organic matter in the soil?
    a) litter b) **humus** c) loam d) dirt

87. Which of the following statement best describe a climax community?
    a) more stable and more diverse
    b) more stable and less diverse
    c) less stable and more diverse
    d) less stable and less diverse

88. The most important adaptation of mangrove plant is
    a) **Vivipary** b) Thick cuticle c) Thick bark d) Thick leaves

89. Maximum biodiversity can be seen in
    a) Tropical rain forest
    b) Temperate forest
    c) Savana
    d) Alpine forest

90. Which among the following are more likely to posses maximum amount of pesticides in thir body?
    a) Grasshopper b) Rabbit c) **Lion** d) Snake

91. Which among the following is the most abundant molecule in the atmosphere
    a) Co2 b) **Argon** c) Methane d) water vapor

92. Which of the following lists levels of ecological organization from smallest to largest?
    a) biome, ecosystem, population
    b) community, population, ecosystem
    c) community, ecosystem, biome
    d) species, community, population

93. Which of the following is NOT a biotic factor?
    a) levels of fungi growth
    b) competition between bird species
    c) average rainfall
    d) rate of bacterial growth

94. Which of the following is an abiotic factor?
    a) humidity levels
    b) soil type
    c) wind circulation patterns
    d) all of the above

95. A certain species of fish is found only within 30 degrees of the equator, this is known as the _____ of the species.
    a) geographic range
    b) density distribution
    c) age distribution
    d) none of the above

96. _____ is greater in cities than in rural areas.
    a) geographic range
    b) population density
    c) age structure
    d) A and C

97. As a population, human beings have a _____ growth rate.
    a) negative
    b) stagnant
    c) positive
    d) unknown

98. Hydrophytes may be
    a) partially submerged
    b) fully submerged
    c) free floating
    d) all of above

99. An example of one way ecological cycle is
    a) carbon dioxide cycle
    b) water cycle
    c) energy cycle
    d) oxygen cycle

100. The water vapour present in the unit volume of air is called
    a) Relative humidity b) Static humidity **c) Absolute humidity** d) Total humidity

Ecology and Phytogeography
K3 level question

Unit 1

1. Write a short account of History and Scope of Ecology.
2. What is the ultimate source of energy for the ecosystems?
3. Define: (i) genetic (ii) species and (ii) ecosystem diversity.
4. Brief how light affects the life of plants.
5. Write about Biotic and Abiotic factors.
6. Describe the adaptation of plants with examples.

Unit 2

7. Write about the salient features of National Biodiversity Bill.
8. Explain the various ex-situ methods implemented to conserve biodiversity.
9. Brief the loss of biodiversity.
10. Briefly discuss the generalized schematic changes that occurs during bog succession.
11. Write a concise account on ecological niche concept.
12. Write short notes on Terrestrial ecosystems.
13. What is the difference between primary and secondary ecological succession?
14. Explain the importance of conservation of Biodiversity.
15. A mature forest community is completely destroyed by fire. Describe the stages of succession by which this community is restored.
16. Distinguish between Fresh water ecosystem and Marine ecosystem.
17. Describe the importance of Plant indicators.
18. Comment on the role of plants as indicators for landscape clarification with suitable examples.
19. Give two examples for the following in India: (i) Sanctuaries (ii) National parks (iii) Biosphere reserves and (iv) Mangroves.
20. Write short notes on IUCN red list categories.
21. List out the ecological adaptation of Xerophytes

Unit 3

22. Define the terms - i) e-waste ii) Ozone layer and iii) endemism.
23. Describe the harmful effects of global warming.
24. Design the plan about e-waste management.
25. Design an environment management plan for air pollution.
26. Define the terms - i) precipitation ii) solar radiation and iii) global warming.
27. Briefly write notes on primary air pollutants.
28. What are the sources of noise pollution? How does it affect our human health.
29. Classify the solid waste and add a note on its disposal.
30. Write notes on climatic change and its consequences.
31. Explain briefly global warming.
32. Write short notes on climate change.
33. Write short notes on La Nina phenomenon.

34. Write a note on global warming and its effects.

Unit 4

35. Explain the importance of ecolabeling.
36. Write short notes on eco-restoration.
37. Enumerate ecolabelling briefly.
38. Discuss the major objectives of Environmental Impact Assessment.
39. How does ecological footprint account for recycling? Explain.
40. Brief the scope of environmental monitoring
41. Write short notes on carbon foot print.
42. Give a note on the scope of EIA.
43. Explain briefly carbon sequestration.
44. What are the basic concepts of EIA?
45. Define the following: (i) Ecological footprint (ii) Ecolabeling.
46. ervation and sustainable use.
47. Write short notes on Kyoto protocol.
48. Write short notes on bio-monitoring.
49. Define the following: (i) EIA (ii) Ecolabeling.
50. Write about the classification of species by the IUCN red list.

Unit 5

51. Write about present day distribution of plants.
52. Explain the importance of plant geography.
53. Write a short account on endemism.
54. Bring out the principles and importance of plant geography.
55. Brief about principles and scope of plant geography
56. What is Age and Area hypothesis?
57. Give a note on the red data book.
58. Differentiate between dispersal and migration.

K4 level question

Unit 1

1. What are the various phytogeographical regions of the India?
2. Write essay on continental drift hypothesis.
3. Explain the concept of ecosystem, its structure and function.
4. Write an essay on Ecological factors with suitable examples.
5. Enumerate the concepts and characteristics of biotic community.

6. Explain in detail about adaptation of plants.

Unit 2

7. Discuss the flow of energy through the ecosystem and explain the relationship between the different trophic levels.
8. Explain in detail the types, benefits and conservation of Biodiversity.
9. With neat labelled diagram explain the concepts of Ecosystem with its structure and function.
10. Describe the stages of succession in pond.
11. Explain *ex – situ* and *in – situ* conservation of species.
12. Write an essay on climax concept with suitable examples.
13. Define biodiversity and explain biodiversity with reference to genetic, species and ecosystem biodiversity.
14. Describe the process of ecological succession from a pioneer community to a climax community.

Unit 3

15. What is climate change? Write an essay on climate change and its consequences.
16. Discuss in detail about causes and effects of global warming.
17. Give a detailed account on water pollution and its effects.
18. Write an essay on EI-Nino and La Nina phenomenon.
19. Describe (i) climate change and global warming, (ii) acid rain and (iii) ozone layer depletion.
20. Explain the concept of bio-monitoring and biological indicator.
21. Explain the importance and application of EIA process.
22. Describe the causes, effects and control measures of water pollution.
23. Define soil pollution, list five major soil pollutants and how can we prevent soil pollution.

Unit 4

24. Explain the scope, importance and application of EIA process.
25. Give an account on ecological foot prints, carbon foot print and environmental auditing.
26. Explain the consequences of climate change.

27. Write an essay on scope, importance and application of environmental impact assessment process.Explain in detail about environmental audit and carbon foot print.
28. Narrate on environmental ethics.

Unit 5

29. Write an essay on age and area hypothesis.
30. Write an essay on Phytogeographic regions of India.
31. Write an essay on environmental auditing and standards.
32. Describe the convention of biological diversity (CBT).
33. Explain a Indian case study on conservation/management strategy for Endemic plants.