

Ph.D. ENTRANCE EXAMINATION, APRIL 2021**ENVIRONMENTAL SCIENCE**

Time : Two Hours

Maximum : 100 Marks

General Instructions :

- Part A contains objective type questions with multiple choices. Each question carries 2 marks. There will not be negative marks.
- Part B is the descriptive type with short answer and essay type questions.
- Answers to Parts A and B should be made in the answer sheets provided.

Part A

1. All the interbreeding individuals belonging to different ecotypes of a shared natural area represents _____.
(a) Species. (b) Population.
(c) Coenospecies. (d) Ecospecies.
2. The gradual accumulation of a toxin in the body of an organism at a higher trophic level, more than that in its environment, is called _____.
(a) Trophism accumulation coefficient.
(b) Trophism accumulation potential.
(c) Biomagnification.
(d) Biotransformation.
3. EI Nino is a climate change issue occurring from overheating of _____ due to global warming.
(a) The central and eastern tropical Pacific.
(b) Northern temperate central specific.
(c) Eastern and Western pacific.
(d) Atlantic Ocean.

Turn over

4. Which of the following represents the significant difference between primary and secondary Succession ?
- (a) Primary Succession takes place in deserts, whereas secondary Succession takes place in Forests.
 - (b) Primary Succession takes place in initially sterile environments, but secondary Succession takes place in places where an original community is destroyed.
 - (c) Primary Succession is Succession of plant communities whereas secondary Succession is that of animal communities.
 - (d) Primary succession is very time-consuming whereas secondary Succession is a fast process.
5. Which of the following is a secondary pollutant ?
- (a) Smoke.
 - (b) Hydrogen Sulphide.
 - (c) Carbon Dioxide.
 - (d) PAN.
6. Askot Sanctuary, Pithoragarh, Uttarakhand is famous for conservation of ———.
- (a) Glacier Bear.
 - (b) One-Horned Rhino.
 - (c) Musk Deer.
 - (d) Mountain Tiger.
7. Which of the following plant is an invasive climber weed, destroying the forests in tropical India ?
- (a) *Mikania cordata*.
 - (b) *Eupatorium odoratum*.
 - (c) *Thunbergia alata*.
 - (d) *Mimosa spinosa*.
8. The first marine National Park of India is ———.
- (a) Andaman and Nicobar coasts.
 - (b) Gulf of Mannar.
 - (c) Gulf of Kutch.
 - (d) Lakshadweep sea.
9. Which of the following animal of India is NOT an IUCN red-listed one ?
- (a) Malabar large spotted civet.
 - (b) Indian Vulture.
 - (c) Great Indian Bustard.
 - (d) Spotted Deer.

10. Which of the following tree is called 'Red Sandal wood' ?
- (a) Pterocarpus santalinus. (b) Santhalum album.
(c) Santalum ellipticum. (d) Santalum rubia.
11. The environmental causes of Methaemoglobinemia, a blood disorder in babies, include ———.
- (a) Nitrate contamination in drinking water.
(b) Benzocaine in certain oral medications.
(c) Both the above two causes.
(d) Ammonia in water.
12. Ozonosphere is located at ——— part of the atmosphere, and it has a width of ——— kilometre in the region.
- (a) Thermosphere, 5 km. (b) Stratosphere, 25 km.
(c) Troposphere, 15 km. (d) Stratosphere, 5 km.
13. Why are plastics less than 40 microns thickness banned ?
- (a) Plastic less than 40-micron thickness is not cost-effective to collect and recycle.
(b) Plastic less than 40-microns are more environment toxic than the other plastics.
(c) Plastic less than 40-microns thickness kill wild animals.
(d) All the above.
14. The chief objective of environmental education is to provide individuals :
- (a) Environmental awareness and attitudes.
(b) Ecological Knowledge and abilities.
(c) Skills to deal with nature.
(d) All the above.
15. The first world summit on the environment, the United Nations Conference on Human Environment, held in 1972, resulted in the Stockholm declaration containing ——— Principles and an action plan with ——— main categories of activities.
- (a) Three, three. (b) Twenty-six, three.
(c) Three, twenty-six. (d) Six, two.

16. Communities and the non-living environmental components such as climate and soil of a specific area of the earth together form ———.
- (a) Ecosystem. (b) Population.
(c) Plant community. (d) Biosphere.
17. Match the following correctly :
- | | |
|-------------------------|---|
| 1 Abiotic component | (A) Many species together. |
| 2 Study of surroundings | (B) Environment education. |
| 3 Community | (C) Water. |
| 4 Population | (D) Environment science. |
| 5 Tbilisi conference | (E) The primary biotic component of ecosystems. |
- (a) 1 - C, 2 - D, 3 - A, 4-E, 5-B. (b) A-C-E-B-D.
(c) C-B-A-E-D. (d) D-A-B-C-E.
18. State True or False : Ecology is a moral science that teaches the basic principles of all the natural interrelationships on the earth :
- (a) True.
(b) False.
(c) First part is true, but the second part is false.
(d) First part is false, but the second part is true.
19. State True or False : Natural assemblage of different species occupying a common area is called population :
- (a) True.
(b) Population can be artificial assemblages of species.
(c) False.
(d) Partly true and partly false.
20. Which one of the following is not an air pollutant ?
- (a) Microplastic. (b) Carbon dioxide.
(c) Hydrocarbons. (d) Photochemical smog.

21. Pollution of water bodies from excess Nitrogen or Phosphorus load is _____.
(a) Ecotrophy. (b) Water pollution.
(c) Nutrient pollution. (d) Eutrophication.
22. The proactive activity of finding faults or weaknesses in the environmental management system and suggestion of measures for improvement in the overall productivity of an institution is _____.
(a) Environment Management. (b) ISO 14001.
(c) Environment auditing. (d) Ecosystem Auditing.
23. The 'environmental inventory' of environment impact assessment includes a description of _____.
(a) Physicochemical aspects of environment.
(b) Physical, biological and cultural Environment.
(c) Physical, biological and social environment.
(d) Natural environment only.
24. The formation of UNFCCC was the major decision of _____ UN conference.
(a) Rio Earth Summit 1992. (b) Johannesburg Summit, 2002.
(c) COP 23 in Bonn, 2017. (d) Stockholm Conference 1972.
25. The two major biodiversity hotspots of India include :
(a) Western Himalaya and Chilika Lake.
(b) Western Himalaya and Western Ghats.
(c) Eastern Himalaya and Ghir Forests.
(d) Eastern Himalayas and the Western Ghats.

(25 × 2 = 50 marks)

Part B

*Answer any **eight** questions.
Each question carries 5 marks*

26. Explain the role of environmental impact assessment in sustainable development.
27. Write short notes on the National Environment Policy.

Turn over

28. Distinguish between population and community.
29. What are endemic species ? Explain Biodiversity Hotspots.
30. Explain the significant environmental impacts of pesticides.
31. Explain the significant air quality parameters.
32. Explain the significant roles of environmental auditing.
33. Critically analyze the role of the rainwater harvesting system in Kerala.
34. Define mixing height. Explain its significance in the dispersal of air pollutants.
35. Describe the role of environmental education in sustainable development.
36. Explain the significance of the Environment Protection Act of 1986.
37. Explain with examples the significance of in situ and ex situ conservations.

(8 × 5 = 40 marks)

*Answer any **one** question.*

The question carries 10 marks.

38. Explain the global climate change and the role of different greenhouse gases in the same.
39. Explain the details of the UN Sustainable Development Goals.
40. Explain the three different levels of treatment of industrial wastewaters using specific methods.

(1 × 10 = 10 marks)