

MODEL ANSWERS

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SEMESTER END EXAMINATION

B.Sc. (Hons) Agriculture

Semester	: III (New)	Term	: I	Academic Year	: 2021-22
Course No.	: ESDM – 231	Title	: Environmental Studies and Disaster Management		

Credits : 3 (2+1)

Day & Date	: 13.11.2021	Time	:	Total Marks	: 80
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- Note:**
1. Solve ANY EIGHT questions from SECTION "A"
 2. Solve ANY TWELVE questions from SECTION "B"
 3. All questions from SECTION "C" are **COMPULSORY**
 4. Draw neat diagrams wherever necessary

SECTION "A"

(Write the answers in 4-5 sentences only. Each question carries 4 marks)

Q. 1 Enumerate the effects of global warming

Ans Effects of global warming: [a] Melting glaciers [b] Rising sea levels will lead to coastal flooding [c] Forests, farms, and cities will face troublesome new pests, heat waves, heavy downpours, and increased flooding [d] Disruption of habitats, which could drive many plant and animal species to extinction. [e] Allergies, asthma, and infectious disease may outbreak
(At least four points should be given, 1 marks each, maximum 4 marks)

Q. 2 Write down any four major impacts of modern agriculture on environment

Ans In modern agriculture, high yielding varieties (HYV) are grown which require large amount of water supply, chemical fertilizers and pesticides. Hence it leads to following environmental problems:

- (a) **Soil Erosion:** Excessive water-supply and wind removes the top fertile layer of the farm. Loss of nutrient rich soil not only reduces productivity
- (b) **Ground water contamination:** Leaching of nitrates (NPK fertilizers) may cause ground-water pollution.
- (c) **Water-logging and salinity:** Due to improper drainage, water gets accumulated in the farm known as water-logging. When water evaporates, it causes salinity in the soil.
- (d) **Eutrophication:** When the water runoff with chemical fertilizers reach to the nearby water body small water plants grow in excess known as Algal Bloom. It prevents or stops intermixing of atmospheric oxygen to dissolved oxygen in water.
- (e) **Biomagnification:** Concentration of the toxic substance increases several times when it is transferred from one organism to another, in the food-chain known as Biomagnification. E.g. increase in DDT concentration caused reproductive failure in birds i.e. their eggs hatch before time.
- (f) **Seed Suicide:** High yielding varieties (HYV) are used in modern agriculture, to produce more crop yield. They require large amount of water and fertilizers i.e. HYV are irrigation and chemical fertilizer intensive. *(1 marks for each point at least four points should be given)*

Q. 3 Give sources of non-conventional energy resources. Explain any one in brief

Ans Nonconventional energy sources: [a] Solar energy [b] Wind energy [c] Hydropower [d] Tidal energy [e] Geothermal energy [f] Biomass energy etc., *(At least four sources should be given, ½ each, 2 marks for brief description of any one)*

Q. 4 Describe different kinds of consumers found in ecosystem with example

Ans **Consumers** or heterotrophs are organisms that depend on other organisms for food. Consumers are further classified into [a] **Primary consumers** are always herbivores that they rely on producers for food.[b] **Secondary consumers** depend on primary consumers for energy. They can either be a carnivore or an omnivore. [c] **Tertiary consumers** are organisms that depend on secondary consumers for food. Tertiary consumers can also be an omnivore. [d] **Quaternary consumers** are present in some food chains. These organisms prey on tertiary consumers for energy.

(1 mark for each class of consumers with correct example, maximum 4 marks)

Q. 5 State different causes of wildlife extinction

Ans **Causes of wildlife extinction:** [1] Destruction of their natural habitat due to expanding agriculture, urbanization and industrialization [2] Overgrazing by domestic animals that convert the area into deserts [3] Hunting/poaching on a large scale for meat, fur, ivory etc-commercial exploitation [4] Uncontrolled/Illegal Export of some species [5] An unbalanced sex ratio 6] Some species are narrowly restricted to an area 7] Natural processes are also cause a decline in the population. Low population may external and new population colonizes, when death exceeds birth rate. *(1 mark for each correct cause, maximum 4 marks)*

Q. 6 Enlist any four control measures of water pollution

Ans **Control measures of water pollution:**

1. The sewage pollutants are required to be treated in sewage treatment plants before their discharge in natural water bodies.
2. Water pollution due to organic insecticides and pesticides can be reduced by the use of very specific and less stable chemicals in the manufacture of insecticides/pesticides. Moreover, use of bio-fertilizers needs to be promoted.
3. Oxidation ponds can be useful in removing low level of radioactive wastes.
4. Dead bodies of animals/human should not be floated in water sources.
5. Domestic and industrial waste waters should be treated properly in waste water treatment plants, before discharge in the natural aquatic systems.
6. Strict implementation of legislations for water treatment should be done.
7. No solid waste should be dumped into water bodies.
8. Bathing, washing of clothes, and idol immersion should be strictly restricted in natural water bodies. *(At least four sources should be given, 1 each)*

Q. 7 List out different Legislations operating for environmental conservation

Ans **The legislation for environmental protection comprises of following Acts**

- (a) The Environment (Protection) Act, 1986.
- (b) The Air (Prevention and Control of Pollution) Act, 1981.
- (c) The Wild life (protection) Act, 1972.
- (d) The Water (Prevention and Control of Pollution) Act, 1974.
- (e) The Forest (Conservation) Act, 1980.

(Atleast four legislation should be given, 1 mark for each, maximum 4 marks)

Q. 8 Describe Forest Ecosystem

Ans Brief description regarding biotic (producer, consumer and decomposers) and abiotic components found in forest ecosystem with proper example should be given *(1 mark for each component maximum 4 marks)*

Q. 9 Explain classification of man-made disasters

Ans **Manmade Disaster:** (a) **Major manmade disaster** viz., Setting of fires, Epidemic, Deforestation, Pollution due to prawn cultivation, Chemical pollution and Wars etc., (b) **Minor manmade disaster** viz., Road/train accidents, riots, Food poisoning, Industrial

disaster/ crisis, Environmental pollution (2 mark for each type of man-made disasters, maximum 4 marks)

Q. 10 What are different types of pyramids. Explain anyone

Ans Different types of pyramids: [a] Pyramid of numbers [b] Pyramid of Biomass; and [c] Pyramid of energy (2 mark for all three types of pyramids and 2 marks for description of anyone of type with proper diagram)

SECTION "B"

(Write the answers in one sentence only. Each question carries 2 marks)

Q. 11 Do as directed (Any Twelve)

1) Define pollution

Ans Pollution: It is the introduction of contaminants into the natural environment that cause adverse change

2) What is environment?

Ans Environment: the surrounding conditions of an organism i.e. plants, animals

3) Enlist sources of HIV infection

Ans Sources of HIV: The pathogen is present in blood, semen, vaginal secretions and cerebrospinal fluids of infected person. ($\frac{1}{2}$ marks for each source, maximum 2 marks)

4) Give any two example of omnivores

Ans Examples : Man, raccon etc., (1 mark for each correct example, maximum 2 marks)

5) Give any two causes of global warming

Ans Causes of global warming:[a] Burning of fossil fuels [b] Deforestation [c] increased concentrations of greenhouse gases in the atmosphere [d] Imitation of methane through agriculture and livestock (1 mark for each correct cause, maximum 2 marks)

6) State different levels of biodiversity

Ans Three Levels of biodiversity: [1] Genetic diversity [2] Species diversity [3] Ecological diversity (1 mark for each type of level of biodiversity maximum 2 marks)

7) Define environmental science

Ans Environmental Science: it can be described study of the interrelationships among organisms, the environment and all the factors, which influence life on earth, including atmospheric conditions, food chains, the water cycle, etc. (2 mark for correct definition)

8) Differentiate between food chain and food web

Ans Food chain: The sequence of transfers of matter and energy in form of food among organisms
Food web: Interlocking pattern of several interlinked food chains (correct difference 2 marks)

9) What is community?

Ans Community is an assemblage of different populations living together in an area (2 mark for correct definition)

10) Enlist various channels used for disaster warning

Ans Important channels used for disaster warning includes [1] Radio and Television [2] Telephone (Landlines/mobiles) [3] Short message services [4] Satellite radios [5] Internet/Emails etc., (Correct any four channels, $\frac{1}{2}$ Mark each maximum 2 marks)

11) What is difference between autecology and synecology?

Ans Autecology concerns to study of a single species and its environment while synecology concerns to whole community. (Correct difference 2 marks)

12) List out the classes of natural resources based on quantity, mutability and reusability

Ans Based on quantity, mutability and reusability viz., Inexhaustible, Exhaustible, renewable and non-renewable. (Correct four classes, $\frac{1}{2}$ Mark each maximum 2 marks)

13) Give any four sources of air pollution?

Ans Sources of air pollution: Air pollution results from gaseous emission from mainly industry, thermal power stations, automobiles, domestic combustion, fireworks etc.

(List out any four sources $\frac{1}{2}$ Mark each maximum 2 marks)

14) Write down any four causal factors for threat to biodiversity?

Ans The various causal factors of threat to biodiversity : [1] Development pressure [2] Encroachment [3] Exploitation [4] Human induced disasters [5] Management of Natural resources [6] Management of Human Resource (At least Four causal factors should be given $\frac{1}{2}$ mark each maximum 2 marks)

SECTION "C"

Q. 15 (Choose the correct alternative) Each question carry 1 mark)

- 1) _____ is place where an organism lives in nature
[a] **Habitat** [b] Food web
[c] Food chain [d] None of these
- 2) The process of emission of infrared radiation by atmosphere warms earth surface _____
[a] **Green house effect** [b] Global warming
[c] Pollution [d] None of these
- 3) Planting new forests on lands that have not been recently forested is _____
[a] **Afforestation** [b] Reforestation
[c] Plantation [d] All of these
- 4) _____ is the role and position a species has in its environment
[a] **Ecological niche** [b] Ecology
[c] Biome [d] Interaction
- 5) EIA stands for _____
[a] **Environmental Impact Assessment** [b] Environmental Immunity Assessment
[c] Environmental Impact Authority [d] Environmental Identity Authority
- 6) The biotic component of ecosystem includes _____
[a] Herbivores [b] Carnivores
[c] Omnivores [d] **All of these**
- 7) _____ energy is heat derived within the sub-surface of the earth
[a] Hydropower [b] Biomass
[c] Tidal [d] **Geothermal**
- 8) The causal factor of water pollution includes _____
[a] Urbanization [b] Agricultural runoffs
[c] Deforestation [d] **All of these**
- 9) Major natural disaster includes _____
[a] Flood [b] Earthquake
[c] Drought [d] **All of these**
- 10) Decomposers are termed as _____ of ecosystem
[a] Primary consumers [b] Secondary consumers
[c] Tertiary consumers [d] **Micro consumers**
- 11) Biosphere comprises of _____
[a] Atmosphere [b] Lithosphere
[c] Hydrosphere [d] **All of these**
- 12) Solar energy can be harvested using _____
[a] Solar heat collectors [b] Solar cells
[c] Solar cookers [d] **All of these**

- 13) In terrestrial ecosystem, the base of Pyramid of numbers consists of _____
 [a] Scavengers [b] Heterotrophs
 [c] **Autotrophs** [d] Detritivores
- 14) _____ is observed as a International Forest Day
 [a] 1 July [b] 5 June
 [c] **21 March** [d] 23 September
- 15) Choose correct food chain from following
 [a] Grass-bird-insect-snake-decomposers [b] Insect-grass-snake-bird-decomposers
 [c] **Grass-insect-bird-snake-decomposers** [d] Insect-grass-bird-snake-decomposers
- 16) _____ book includes the list of endangered species of plants and animals
 [a] Black Data [b] Blue Data
 [c] **Red Data** [d] Yellow Data
- 17) _____ kind of cultivation is important reason for deforestation in tribal area
 [a] Organic cultivation [b] In-organic cultivation
 [c] **Shifting cultivation** [d] None of these
- 18) Fauna comprises of _____
 [a] Plants only [b] **Animals only**
 [c] Both plants and animals [d] None of these
- 19) A condition of scarcity of water is termed as _____
 [a] Flood [b] **Drought**
 [c] Pollution [d] None of these
- 20) _____ can't be the cause of water scarcity
 [a] Population explosion [b] **Construction of dams and reservoirs**
 [c] Hike in demand [d] Uneven distribution of water sources
- 21) The zone of earth comprises of all forms of life _____
 [a] Life-zone [b] **Biosphere**
 [c] Bio-zone [d] None of these
- 22) ENVIS stands for _____
 [a] Environmental Investigation System [b] **Environmental Information System**
 [c] Environmental Industrial System [d] None of these
- 23) _____ is a unit of carbon dioxide bought to reduce greenhouse gas emissions
 [a] Carbon Loan [b] **Carbon Credit**
 [c] Carbon Unit [d] Carbon Wealth
- 24) _____ can't be omnivore
 [a] Producers [b] **Primary Consumers**
 [c] Tertiary consumer [d] Decomposers
