

SCHEME OF VALUATION [15] 3001

Revision (15)		Course code 3001		
Course title ENVIRONMENTAL SCIENCE & DISASTER MANAGEMENT				
Q No.	Scoring indicators	Split up score	Sub Total	Total
1	Rainfall Groundwater Surface water	1 1	2	2
2	a natural functional ecological unit comprising of living organism and their non living environment			2
3	Air pollution produced by the action of sunlight on hydrocarbons, nitrogen oxides and other pollutants.			2
4	environment where fresh water and salt water come together.			2
5.	Information Education communication	1 1	2	2
<u>Part - B</u>				
ii	1			
	Least pollution Safety & security Provide more energy to meet the requirements of increasing population Burning of coal, oil, wood, dung cakes and petroleum products create lot			

of environmental problems.

- to reduce the safety & risk associated with nuclear energy.
- disposal of fly ash creates problems

6x1 6 6

2. Biome is a large ecosystem. An area of earth's surface that has similar climate, plants and animals.

2

They are home of the most diverse biotic community. Forests have a global climate buffering capacity - destruction adversely affect climate

2

water is the basis of life. The world's oceans have an even greater effect on global climate than forests do. Earth is mostly covered with water, the temp. of atmosphere is kept constant & able to support life

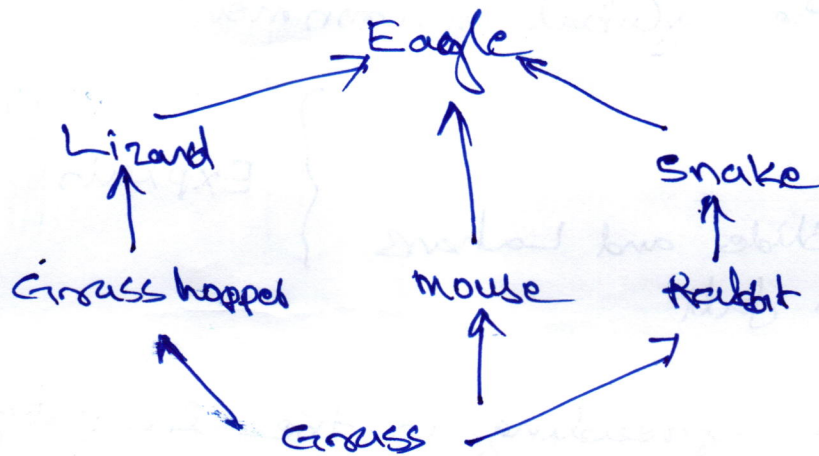
2 - 6

3. In an ecosystem several food chains are linked together and intersect each other to form a complex network called food web

2

- interconnected food chains through which food energy travels is an ecosystem

member of higher trophical level feed upon many organism of lower trophical level



- | | | | |
|----|---|----------------------|---|
| 4. | <ul style="list-style-type: none"> - Preliminary treatment - Explain - Primary treatment - Secondary - Tertiary | 2 | 6 |
| 5. | <ul style="list-style-type: none"> - safe and scientific disposal of laboratory generated nuclear wastes - appropriate protection against occupational exposure - Leakage from reactors, careless use of radioactive elements, careless handling of radioactive isotopes must be prevented - safety measure against accidental release of radioactive elements must be ensured in nuclear power plants - Regular monitoring of the process of radioactive substance in high risk area should be ensured. | 1½
1½
1½
1½ | 6 |

6. Volcanoes are notorious for their devastating effects, not only ~~to~~ on human life but also on the global environment

- Lava
 - Gas
 - Landslide and Lahars
 - Ash fall
- } Explain

1/2
~~1/2~~ 6
 1/2
 1/2

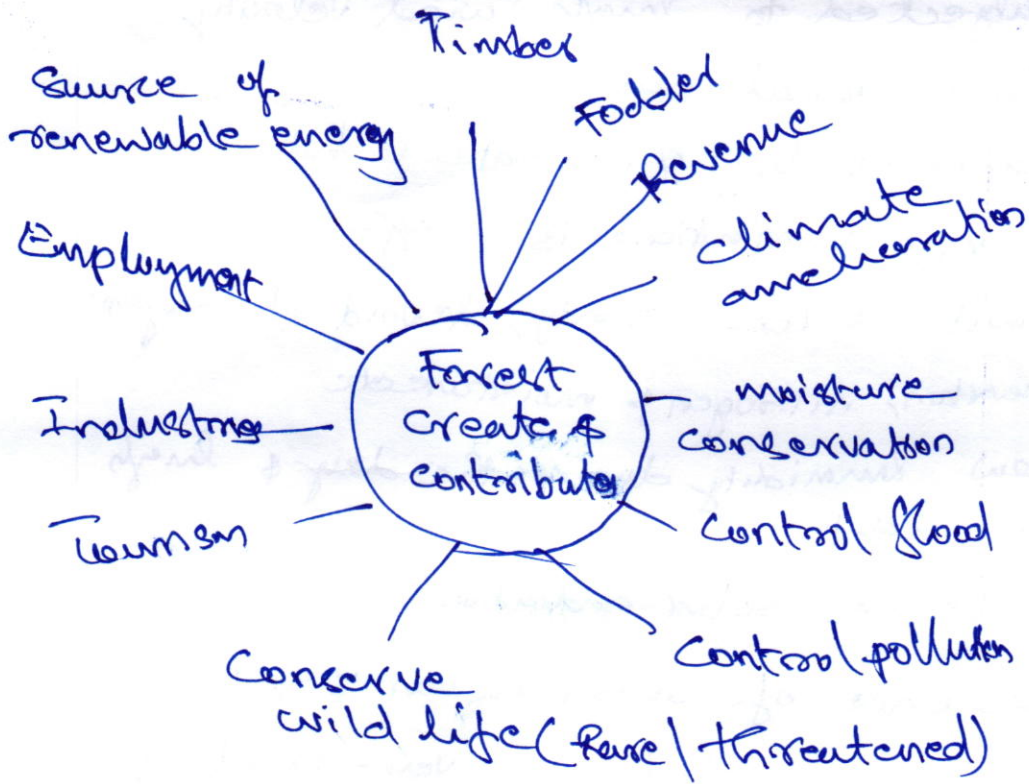
- 7.
- Fire spreading in the industry and the residential area nearby
 - Heat condition
 - Poisonous chemical gas leak
 - Combustion of various products & heat waves
 - Low oxygen levels
 - Falling of structural elements & mics
 - Contamination of the nearby environment (land, water, air)

6x1 6 6

Part - C

- IIIa
- Solar energy
 - Tidal
 - Wind
 - Hydropower
 - Biomass energy
 - Geothermal energy
- List - 2 2
 Expl - 6 6 8

III b.



7x1

7

7

IV a.

- Ground water pollution - Explain ~~Explain~~ # 1
- Surface water pollution - Explain 1
- Air pollution - Explain 2
- Land subsidence - Explain 2
- De-vegetation & defacing of land scapes - Explain 2 8

b.

- Deforestation - Explain 2
- Overgrazing " 1
- Water management " 1
- Mining & quarrying " 1
- Climate change " 1
- Pollution " 1 7

- Va.
- subjected to high wind velocity
 - low annual rainfall
 - air is dry & climate is hot
 - temp. variations is large
 - soil is loose, sandy, devoid of organic carbon, nitrogen & moisture etc
 - low humidity during the day & high in night
 - intense solar radiation
 - absence of water vapour in air
 - Human population is very small etc..
 - Scarcity of water in hot deserts
- any 8 - 8x1 8 8

Vb. The transfer of food energy from producers to decomposers through a series of organisms is called food chain.

- various steps in food chain are called trophic levels

i. Grazing food chain

Grass - grasshopper - frog - snake - micro organism Exp

ii. Detritus food chain: Start from the dead organic matter to the detritivore organisms which in turn make food for protozoan to carnivores etc.

2

8

vi a.

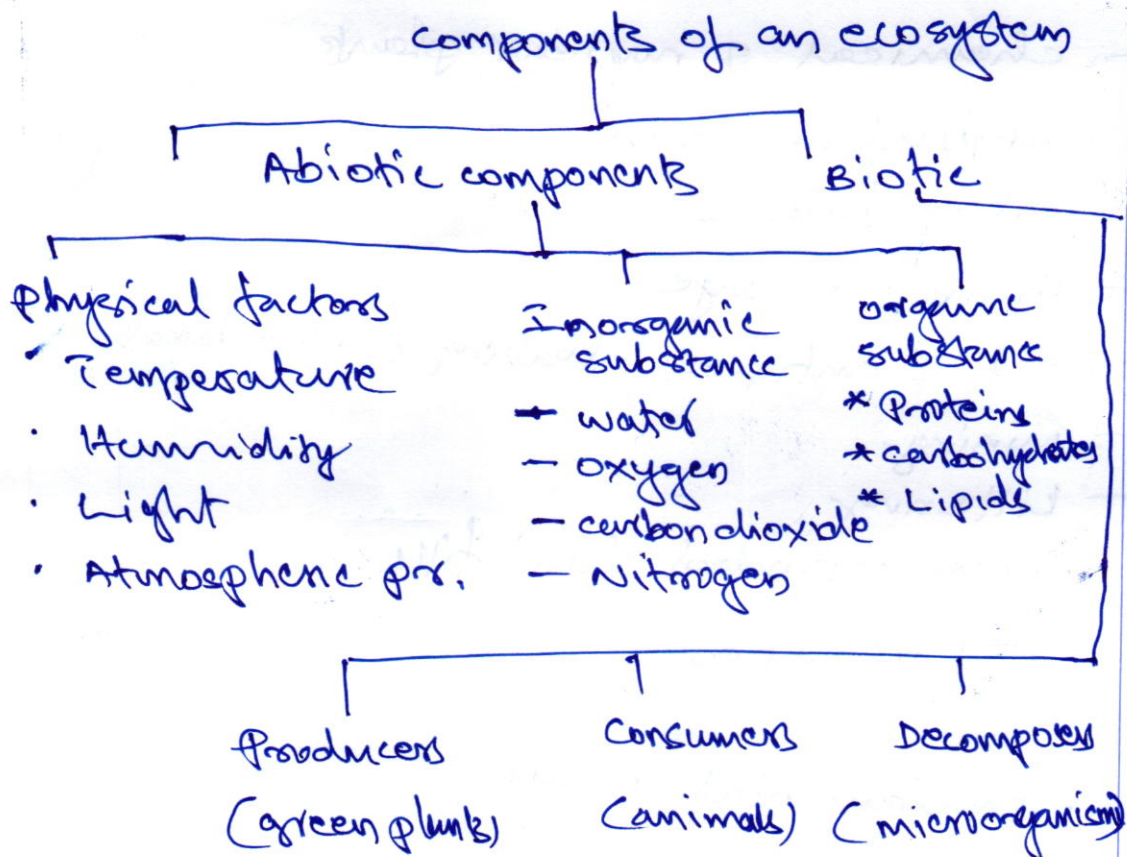


fig. 4
explanation 4

8

- vi b. - Lakes & ponds contains a diversity of organisms that performs different ecological functions
- source of fresh water - supplies drinking water & water for crop growing
 - atmospheric temperature is kept fairly constant & able to support life
 - plankton which accounts for most of the photosynthesis on earth found in lakes, ponds and oceans.
 - Enough oxygen to support such a large world population & complex animal life
 - Availability of fish & purified water

7 7 7

VIIa.

- chemical & nuclear plants
- Industrial activities
- oil refineries
- Human sewage
- oil & antifreeze leaking from automobiles
- mining
- littering
- over crowded landfills
- Deforestation

EXI 8 8

VIIb.

4- fundamental ways

- I. Reduce noise at the source
- II. Block the path of noise
- III. increase the path length
- IV. protect the recipient

name	2	2	
explant	5	5	7

VIII a.

- Large amount of human waste in water increase the number of bacteria
- amount of O_2 reduce & O_2 dependent aquatic life dies
- Eutrophication
- Excess pesticides cause biomagnification
- unfit to drink
- variety of organic chemicals are harmful to human & aquatic life

VIII a

- Accidental oil spills cause environmental damage.
- Fluorine contamination in drinking water causes fluorosis
- Hot water because of thermal pollution not only decrease the solubility of O_2 but also changes the breeding cycles of various aquatic organism

any 8 pt

8x1 8 8

VIII b

In the case of households or colonies vermi-composting which involves the stabilization of organic solid waste through special earth worms by conversion of the organic matter to worm casting is also done.

2 2

vermicomposting involves the culture of earth worms (vermiculture) for the stabilization of different variety of organic solid waste.

1 1

Earthworms feed on any organic waste and consume two to five times of their body weight, excrete the mucus coated undigested matter as wormcasts.

1 1

wormcasts consists of organic matter that has undergone physical and chemical breakdown through the muscular activity that oxidizes the material in to 4 to 3 micron size. These are easily soluble in water and available for plant growth.

3 3 7

Rich in macro & micronutrients, vitamins, enzymes, antibiotics & hormones.

ix.

- | | | |
|------------------------------|-----------|--------|
| - physical damage | - explain | 2 |
| - casualties & public health | " | 1/2 |
| - water supplies | " | 1/2 |
| - crops & food supplies | " | 1/2 |
| - communication | " | 1/2 88 |

b.

Disaster risk management includes sum total of all activities, programmes and measures which can be taken up before, during and after a disaster with the purpose to avoid a disaster.

3 - stages

- | | | |
|----------------------------|---------|-------|
| i. pre - disaster stage | explain | 2 |
| ii. Emergency stage | " | 2 |
| iii. post - disaster stage | " | 2 7 7 |

x.

one of the most important activities of preparing the disaster management plan is mapping of risks, vulnerabilities and capacities of the area by the community itself as it is a simple and cost effective tool for collecting ground level data. This is done through (PRA) participatory Rural Appraisal exercise. This mapping exercise aims to provide a pictorial

x base to the planning process especially to the semi-literate populace and ensure maximum community involvement across gender, caste and other divides. The villagers community members are encouraged to draw the maps on the ground using locally available resources such as stones, colour powder etc, for different lines and indicators. The types of maps are as follows

Introducer 3 3

I - Social mapping : shows

- location of the habitat with respect to natural topography
- Number of houses
- other common infrastructure (eg. safe shelter, temple, mosque, church, drinking water facility etc..)

3 3

II. Resource mapping

- individual skills (community leaders, doctors, drivers, swimmers etc)
- resources around the area (boats, food stock etc)
- important locations such as open land/low lying & elevated areas
- protection bunds
- drainage facilities

4 4