

**SHANMUGHA  
ARTS SCIENCE TECHNOLOGY & RESEARCH ACADEMY  
UNIVERSITY THANJAVUR-613402.**

**II-B.TECH, III SEMESTER**

**Sub: Environmental Studies  
Sub.Code: BITOCE 301**

**Time:90 Min  
Max Marks: 50**

**PART A (10 X 2 = 20)  
Answer All Questions**

**Q1. What is the need for Environmental Studies at Undergraduate level ?**

Environmental studies is essential for (a) creating an awareness of the environmental degradation associated with our various developmental activities through control of both resource depletion as well as pollution and (b) maintaining balance in the ecosystem for sustainability of its biotic and abiotic components.

Thus, all the undergraduate students must know the effect of their activities (personal or community) as well as their branch of study on environment and develop a conscientious approach in their pursuit of higher education, future occupations as well as their very lifestyle.

**Q2. Enlist various natural resources.**

- |                     |                      |
|---------------------|----------------------|
| 1. Forest resources | 4. Energy Resources  |
| 2. Water Resources  | 5. Mineral Resources |
| 3. Food Resources   | 6. Land Resources    |

**Q3. What is the minimum forest cover required for a nation?**

Minimum forest cover required for a nation is 33%, as per the prescription under National Forest Policy.

**Q4. Give any four impacts of deforestation**

Some of the major impacts of deforestation are : decrease in soil fertility (through leaching on nutrients), uncontrolled soil erosion (especially, on steeper sides of forests) and sedimentation downstream (causing siltation in dam, affect functions of hydroelectricity generation as well as livelihood of aquatics), desertification (usually in drier areas), variability in water availability (i.e., droughts and floods), extinction of species with disruption of habitats, etc.

**Q5. Give the details of water distribution on the earth**

Ocean	=	97.6%
Ice-caps and glaciers	=	1.9%
Groundwater and Soil moisture	=	0.5%
Freshwater lakes	=	0.009%
Saline Lakes	=	0.008%
Rivers	=	0.0001%
Atmosphere	=	0.001%

**Q6. What are the effects of water logging ?**

*Effects of water logging :*

Positive Effect: Recharge of groundwater, formation of wetland and associated biodiversity

Negative Effect: Loss of fertility of soil, water-born and vector-born diseases, waterweeds-eutrophication, anaerobation, destroys the plants by oversaturating the pore spaces.

**Q7. Differentiate minerals, rocks and ores.**

**Minerals:** Naturally occurring inorganic materials with fixed chemical composition and preferably fixed physical structure.

**Rocks:** an aggregation of minerals, with fixed mineralogical composition.

**Ores :** The rocks with economic values of extractability.

**Q8. Give any four impacts of mining activities**

*Impact of mining activities :*

Disruption and disfiguration of land-surface, deforestation and loss of biodiversity, pollution and depletion of surface water (mine drainage) as well as ground water and loss of aquatic lives, accidents (esp. underground mines, ex. Coal fire, collapse, etc) and subsidence, mine-induced-seismicity (during explosion for excavation as well as due to geostatic imbalances caused by deficit mass), loss of top-soil (by mining activity as well as dumping the rejects after beneficiation), air and noise-pollution (during excavation and crushing), occupational hazards and several toxicity induced diseases, etc.

**Q9. What are Fossil Fuels?**

Naturally occurring hydrocarbons ( primarily coal, petroleum and natural gases), which has seemed to be originated from fossilized remnants of plants and animals in geological history. Of late, the term fossil fuel was also extended to other hydro-carbon natural resources, but not necessarily associated predominantly with biological sources- such as tar sand. These are mostly used for combustion and, till date, form the major source of non-renewable conventional source of energy of the planet.

**Q10. What is reservoir induced seismicity?**

The additional load of stored water in a reservoir affect the geostatic balance of the region resulting in seismic tremors. Such anthropogenic seismicity is commonly called reservoir induced seismicity, which affect the stability of the neighbouring structures, leading to formation of cracks, and so forth.

**PART-B (3 X 10 = 30)**  
**(Answer any THREE questions only)**

**Q11. Discuss the various components of Environment**

*The various components of environment :*

Hydrosphere, Lithosphere, Atmosphere and Biosphere

*The various interaction among the spheres:*

Grand-scale distribution as well as transporter of matter - atmosphere, conveyer and reservoir of matter- hydrosphere, substratum and storage- lithosphere, prime mover of biogeochemical cycles- biosphere.

[ 4 + 6 ]

**Q12. Explain impacts of over exploitation of forests.**

Future insecurity of forest resources (loss in consumptive, productive, cultural as well as optional values), loss of ecosystem sustainability and subsequent depletion of biodiversity (of flora and fauna), man-wildlife conflict, disruption of meteorological regime (temperature, precipitation, wind pattern, humidity), imbalances in hydrological cycle leading to droughts and floods and change in landuse, deterioration in top-soil quality and quantity and atmospheric instability (gaseous exchanges)

[5 X 2 ]

**Q13. “Any Nations economy depends on Mineral Resources”.  
Discuss the measures to minimize impacts of mining.**

*Mining as the means for economic development-*

Residential and domestic sector, industrial sector, transportation and other infrastructural sectors (incl. dams & bridges, constructions) as well as developmental sectors (information, electronics, communication, bio-medical, etc.)

*Minimisation of the impact of mining-*

Increase dependency on non-mineral, indigenous alternatives, safe small scale mining, restriction in resource mobilization and heavy-duty commercial exploration, preservation of top-soil, mine-stabilization (refilling & reforestation), security against occupational hazards, discourage the clustering of habitation and industrialization in mine-vicinity.

[ 5 + 5 ]

**Q14. Explain the role of an individual in conservation of natural resources**

Role of Individual as independent entity : specific to individual resources – forest, water, land, energy, food and minerals; conservation and substitution- options, general change in lifestyle and perspective, pursuit of sustainable values.

Role of Individual as a part of Community : Community measures, organizational perspective, mutual assistance, NGO's, eco-responsibility- activism, research, technology, awareness.

Role of Individual in the role of planning and governance : Resource planning and mobilization, policy measures, legislation, eco-friendly economic and technological schemes, awareness and involvement of individuals.

*[ 4 + 3 + 3 ]*

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