

(4)

3. How do natural and anthropogenic factors contribute to shifts in the Earth's climate? Provide examples of proxy indicators that have been used to reconstruct past climates. What are positive and negative climate forcings in the context of Earth's energy balance? 3+2+2=7
4. List some of the major environmental impacts associated with mining. What do we mean by sustainable energy policy? Explain the process of bioremediation for treating polluted soil. 3+2+2=7

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Ex/SC/GEOL/UG/MDC/TH/11/101C/2025

B. SC. GEOLOGICAL SCIENCE EXAMINATION, 2025

(1st Year, 1st Semester)

PAPER : CORE/TH/11/101C

(ENVIRONMENTAL GEOLOGY)

Time : Two Hours

Full Marks : 40

(Use separate Answer Scripts for each Part.)

PART—I

(Marks : 20)

Answer Q. No. **1** and *any two* from the rest :

1. Write short notes on the following : 2×2=4
(a) Biomass [CO1]
(b) Heavy metal pollution [CO4]
2. What is pedosphere? Which factors are responsible for soil formation? What is soil profile? Explain with schematic diagram. [CO6] (2+2+4=8)
3. How do you distinguish 'Oligotrophic Lake' and 'Eutrophic Lake'? What impact does it have on aquatic organisms? What are the existing theories of arsenic release in groundwater? What are the sources of arsenic in alluvium sediments? [CO3 & CO4] (3+3+2=8)

(2)

4. What do you mean by Hazard and Disaster? What do you mean by Vulnerability and Resiliency? What do you mean by Biological Oxygen Demand? What impact does it have on aquatic life? [CO3 & CO4] (2+2+2+2=8)

PART—II

(Marks : 20)

Answer Q. No. 1 by selecting the **correct** statement from the given options and **any two** from the rest : 1×6=6

1. (i) What is the main factor contributing to soil fertility?
- (a) Color of the soil
 - (b) Texture of the soil
 - (c) Presence of organic matter and nutrients
 - (d) Age of the soil
- (ii) How does recycling impact mineral resource sustainability?
- (a) It increases mining activities
 - (b) It reduces the demand for new raw materials
 - (c) It limits the use of renewable resources
 - (d) It increases energy consumption
- (iii) Peak oil refers to
- (a) the maximum production rate of oil in a region or globally
 - (b) a sudden drop in global oil-reserves
 - (c) the economic decline of oil-producing countries
 - (d) the transition to renewable energy

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[Continued]

(3)

- (iv) A significant environmental risk associated with fracking for nature gas extraction is
- (a) widespread deforestation
 - (b) groundwater contamination from injected chemicals
 - (c) the release of ozone-depleting substances
 - (d) radioactive emissions during extraction
- (v) Desertification is most likely to occur in regions where
- (a) permafrost is melting due to climate change
 - (b) vegetation cover is removed or overgrazed
 - (c) volcanic activity increases atmospheric dust
 - (d) ocean temperatures are rising
- (vi) How does deforestation contribute to the increase in greenhouse gas concentrations?
- (a) By releasing stored carbon through decomposition
 - (b) By promoting photosynthesis in remaining trees
 - (c) By reducing the intensity of the greenhouse effect
 - (d) By enhancing soil carbon sequestration
2. Discuss with examples the possible links between human health and the geological environment. What are the causes for air pollutants concentration in urban setting? Write short note on solid waste disposal. $2\frac{1}{2}+2+2\frac{1}{2}=7$

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[Turn Over]