2019

GEOLOGY

(Major)

Paper : 6.3

(Environmental Geology and Engineering Geology)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Answer the following as directed : 1×7=7

(a) Study of prehistoric earthquakes is known as ____.

(Fill in the blank)

(b) Heavy metals like cd and hg can cause soil pollution.

(Write True or False)

(c) Which of the following rock types is least preferred for a dam foundation site?

(i) Limestones

(ii) Quartzites

(iii) Basalts

(iv) Granites

(Choose the correct option)

(d) Which of the following aspects is investigated to determine the suitability of a tunnel site?

(i) Groundwater conditions

(ii) Underground joint systems

(iii) Folding patterns in the rocks

(iv) All of the above

(Choose the correct option)

(e) The capacity of soils to withstand building loads without undergoing excessive settlement or shear failure is known as

(i) Shearing strength

(ii) Bearing capacity

(iii) Compressibility

(iv) Crushing strength

(Choose the correct option)

(f) The factor of scour is taken into consideration during construction of

(i) tunnels

(ii) dams

(iii) bridges

(iv) highways

(Choose the correct option)

(g) Photochemical oxidants constitute one of the principal environmental pollutants.

(Write True or False)

2. Answer the following briefly : 2×4=8

(a) Differentiate between natural and anthropogenic environmental hazards.

(b) Write briefly on the scope of Environmental Geology.

(c) What is grouting? Name a few types of grouting materials.

(d) Define any two engineering properties of soils.

3. Write on any *three* of the following : 5×3=15

(a) Impact of landslides on environment

(b) Seismic vulnerability

(c) Impact of open-cast mining on environment

(d) Abutment problems in a dam site

(e) Geophysical investigation of dam sites

(f) Role of geologists in the construction of bridges

4. Answer any *three* of the following : 10×3=30

(a) Describe the various seismic hazard assessment parameters.

(b) Describe the impact of flood on environment.

(c) What are the different forms of environmental pollution? Describe any three in detail.

(d) Describe the various geological factors that are considered during the design and construction of highways.

(e) What is landslide? Describe the various ways adopted to minimize landslide hazards.

(f) Write in detail on the geological investigation procedure adopted in selecting a suitable dam site.

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