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**CE 1317 E 011 NR**

Roll No. of candidate

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**B.Tech. 7<sup>th</sup> Semester End-Term Examination**

All

**ADVANCED ENGINEERING GEOSCIENCES (Elective - I)**

(New Regulation w.e.f. 2017-2018)

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks  
for the questions.

Answer question No. 1 and any *four* from the rest.

1. Fill up the blanks (Answer *all* the questions) : (10 × 1 = 10)
- (i) Soils which are brought by wind, water and glacier from far-off places and are deposited at suitable places are known as \_\_\_\_\_ soil.
  - (ii) Desert soils are formed in \_\_\_\_\_ climate with practically negligible rainfall.
  - (iii) The soils which are found in major parts of Maharashtra and Gujarat are known as \_\_\_\_\_.
  - (iv) When the hanging wall side of a fault moves up with respect to footwall side, the fault is known as \_\_\_\_\_ fault.
  - (v) Rock Quality Designation (RQD) is considered as yardstick to represent \_\_\_\_\_.
  - (vi) Any break in a rock mass irrespective of its size is termed as \_\_\_\_\_.
  - (vii) Seismic exploration is mostly used for \_\_\_\_\_.

[Turn over

(viii) Porosity of a rock sample is defined as ratio of the volume of voids to the \_\_\_\_\_.

(ix) The clay which is derived from volcanic ash and used as drilling mud is known as \_\_\_\_\_.

(x) Gully erosion is very prominent on \_\_\_\_\_.

2. (a) Define Soil. Name the factors affecting the soil formation. (2+3=5)

(b) Briefly describe the soil forming factors. (10)

3. Write short notes on any *three* of the following: (3 × 5 = 15)

(a) Soil profile

(b) Indo-gangetic Alluvium

(c) Red Soil

(d) Transported Soil

(e) Black Cotton Soil

4. Write short notes on any *three* of the following: (3 × 5 = 15)

(a) Role of nature of rock and climate on weathering

(b) Frost Action

(c) Spheroidal weathering

(d) Thermal Stress

(e) Grades of Rock Weathering

5. (a) Give an account of geological classification of soils. (10+5=15)

(b) Describe briefly the types of soil erosion.

6. (a) Explain Rock Quality Designation. (5+4+2+2+2=15)

(b) Classify the rocks on the basis of Rock Quality Designation.

(c) During a dam site investigation a core run of 200 cm was made; total core recovery was 175 cm, and modified core recovery was 162 cm. Using these data, find out the following:

- (i) Core recovery percentage
- (ii) R.Q.D. percentage
- (iii) Mention the category of the rock quality description of the recovered core.

7. Write short notes on any *three* of the following:

(3 × 5 = 15)

- (a) Effects of folds in dam foundations
- (b) Effects of faults in dam foundations
- (c) Normal fault and reverse fault
- (d) Structure of Montmorillonite mineral
- (e) Grouting