

Roll No.

OLE-3206

B. Tech. 5th Semester (Civil Engg.) Examination – April, 2021

ENGINEERING GEOLOGY

Paper : PCC-CE-311-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory*. Attempt *one* question from each Section. All questions carry equal marks. Assume missing data, if any, suitably.

1. Describe the following :
 - (a) Interior of earth
 - (b) River meandering
 - (c) Susceptibility of Mineral alteration
 - (d) Metamorphic grades

- (e) Measurement of velocity of sound in rocks
- (f) Seismic zones in India 15

SECTION – A

- 2. (a) Define engineering geology with its subdivisions. Explain the importance of geological studies in various civil engineering projects. 7
- (b) Describe in brief the departments dealing with geology and their scope. 8
- 3. (a) Explain the external and internal geological forces causing erosion of surface of the earth. 6
- (b) Describe the following : 9
 - (i) Superficial deposits
 - (ii) Use of geological maps
 - (iii) Desert landform

SECTION – B

- 4. (a) Define mineral and rocks. How can we identify the common primary and secondary minerals ? Describe briefly. 7
- (b) What is origin and composition of minerals ? Describe the physical properties of the minerals with brief description ? 8

5. (a) What is petrology ? Explain in detail the mode of formation and mineralogical composition of sedimentary rocks. 7
- (b) What is volcanic phenomenon ? Explain the types of volcanic eruptions and resulting features. 8

SECTION – C

6. (a) What are the different structures of rocks ? Describe the stresses and strains developed in rocks. 7
- (b) Describe the different types of folds with neat diagram. Also explain their recognition in the field. 8
7. (a) What are the different laboratory and field tests on rocks ? Describe briefly. 6
- (b) Explain the following : 9
- (i) Dip and strike
 - (ii) Deformation and Tectonics
 - (iii) Types of faults

SECTION – D

8. (a) What are the objectives of a dam ? Describe geological considerations in the selection of a dam site. 7
- (b) Describe the concept of sliding. Write down the internal and external causes of landslides. 8
9. (a) Define magnitude and intensity of earthquake. Also explain different seismic waves in detail. 9
- (b) Describe the slope reinforcement by rock bolting and rock anchoring. 6
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