



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 100408

Roll No.

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B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15
ENGINEERING GEOLOGY

Time : 2 Hours]

[Total Marks : 50

- Note :
- (1) Attempt all questions.
 - (2) Marks are shown in the margin against each question.
 - (3) Draw neat sketches wherever necessary.

- 1 Attempt any FOUR parts of the following: $4 \times 3.5 = 14$
- (a) Define Mineral, Describe the following physical properties of Minerals with examples.
 - (i) Fracture
 - (ii) Hardness
 - (iii) Lustre
 - (b) Discuss Bowen's Reaction series? What is its significance in the process of crystallization of Magma.
 - (c) Give a critical account of classification of Igneous rocks. Which is the most suitable classification for a field engineer and why ?

- (d) Explain the requirements, a stone should fulfill so that it can be suitably used as.
- (i) Road Metal
 - (ii) Rip Rap material
 - (iii) Railway ballast
 - (iv) Face work
- (e) Give the distinguishing physical properties of the following minerals:
- (i) Calcite & barite
 - (ii) Haematite & magnetite
 - (iii) Kyanite & Quartz
 - (iv) Orthoclase & Microcline feldspar
- (f) Discuss in detail the application of Geology in Civil Engineering.

2 Attempt any THREE parts of the following : $3 \times 4 = 12$

- (a) Define a fold. How folds are classified? Explain with the help of neat sketches, important types of folds.
- (b) Give an account of Richter magnitude and Mercalli intensity scale of Earthquake. How will you compare between them?
- (c) What is an earthquake? Discuss briefly their causes. What precautions are to be taken for the construction works in seismic areas?

- (d) What are different types of land slide? Discuss the causes & preventive measures.
- (e) Describe the different types of unconformities and discuss the criteria for their recognition.
- 3 Attempt any TWO parts of the following: $2 \times 6 = 12$
- (a) Give an account of geological investigation of dam & reservoir sites. Discuss the problems of tunneling through stratified formations.
- (b) What are the geological investigations necessary for the alignment of hill roads ?
- (c) Write notes on following
- (i) Alkali Aggregate Reaction
 - (ii) Seismograph and Seismogram
 - (iii) Seismic zones of India.
- 4 Attempt any two parts of the following : $2 \times 6 = 12$
- (a) Name the various geophysical explorations. Describe the seismic refraction method for determination of depth of the bed rock. Explain its importance in Civil Engineering.
- (b) Describe the various sources of ground water .Write note on the factors controlling the movement of ground water. Discuss ground water hazards in Engineering Projects.
- (c) Write short notes on :
- (i) Artesian wells & water springs.
 - (ii) Epicentre & Anticentre
 - (iii) Aquifer & Aquiclude.
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