

END TERM EXAMINATION

THIRD SEMESTER [B.TECH] DECEMBER 2017

Paper Code: ETCE-211

Subject: Engineering Geology

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions including Q.no.1 which is compulsory.
Select one question from each Unit. Assume suitable missing data, if any.

- Q1 (a) Give a general view of the internal structure of earth as revealed by seismological evidence.
(b) What is the importance of geological investigation for the design of Tehri dam, a tunnel in Rohtang pass and a rail road bridge covering a deep gorge in Kashmir?
(c) What are secondary minerals? How are they formed? Give their significance in rocks.
(d) What are hot water springs? Give the geological conditions for the formation of hot water springs in otherwise cold climatic conditions.
(e) Write notes on:
(i) Glacial erosion
(ii) application of Photo-geology (5x5=25)

Unit-I

- Q2 (a) Describe in detail, the process of weathering of rocks. How does weathering effect the strength and engineering importance of rocks?(6)
(b) How are rocks classified? Describe the major distinguish properties of the major rocks types. (6.5)
- Q3 (a) Give an account of erosional and depositional landforms created by the action of rivers. (6)
(b) Describe the following rocks, giving their mineralogical composition, texture and engineering importance. (6.5)
(i) Granite
(ii) White marble
(iii) Sandstone

Unit-II

- Q4 (a) How would you distinguish between (illustrate with sketches). (4)
(i) Normal fault and reverse, fault.
(ii) Longitudinal and reverse, fault.
(b) What are folds? How are they caused? Give the importance of folds in civil engineering projects. (8.5)

(2+3+3+4.5=12.5)

- Q5 Write short notes:
(a) Unconformities
(b) Geometric and Genetic joint
(c) Primary and secondary structure in rocks
(d) Dip and strike, with appropriate sketches.

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Unit-III

(3+3+3+3.5=12.5)

- Q6 Write short notes on:
- (a) Salt water intrusion
 - (b) Safe yield
 - (c) Types of aquifers
 - (d) Tectonic earthquakes

- Q7 Explain the following terms:
- (a) Epicentre
 - (b) Seismogram
 - (c) Ground water hazard
 - (d) Earthquakes leading to tsunamis

(2.5+2.5+2.5+5=12.5)

Unit-IV

- Q8 (a) Discuss the objectives and general methods of geological investigation for major engineering projects. (6.5)
- (b) Discuss those geological situations, which if ignored at time of planning and design, could be cause of a dam disaster. (6)
- Q9 (a) Compare and contrast relative geological merits and demerits of tunnel and open cuts for projects such as Road/rail traffic, Water transfer and pedestrian path. (6.5)
- (b) What are the common types of Landslides? Give scientific reasons for the occurrence of Landslides? (6)

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