

Paper Id:

100751

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B. TECH
(SEM VII) THEORY EXAMINATION 2019-20
GEOLOGY AND SOIL MECHANICS

Time: 3 Hours

Total Marks: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief. 2 x 7 = 14

a.	Enlist various rock forming minerals.
b.	Discuss plate tectonics in formation of earth's crust.
c.	Define the term tsunami.
d.	Write the difference between petrology and geology.
e.	Illustrate dip slope.
f.	Define metamorphism.
g.	Enlist the different earthquake zone of India

SECTION B

2. Attempt any three of the following: 7 x 3 = 21

a.	Discuss the scope and application of geology in civil engineering works.
b.	Describe folds and folding. Elaborate the classification of folds.
c.	Explain various causes of mass movement. Also define angle of repose.
d.	Give in the detail the geological investigation required in construction of the road in hilly area.
e.	Explain various index properties of soils.

SECTION C

3. Attempt any one part of the following: 7 x 1 = 7

(a)	Describe the internal structure of earth as revealed by seismological evidence.
(b)	Discuss the formation of rocks. Explain the uses & properties of rocks.

4. Attempt any one part of the following: 7 x 1 = 7

(a)	Differentiate between stratification and lamination with a neat sketch. Also explain the phenomena involved in cross bedding.
(b)	Explain the causes and effects of faulting. Also describe various types of Faults.

5. Attempt any one part of the following: 7 x 1 = 7

(a)	Define earthquake. Explain the various causes of an earthquake. Differentiate between intensity and magnitude of an earthquake.
(b)	Write the difference between mass wasting and erosion. Also elaborate various causes and types of a landslide.

6. Attempt any one part of the following: 7 x 1 = 7

(a)	“Geological investigations are the key to success of a civil engineering works like dam, tunnel, bridges etc. Justify.
(b)	Explain the following- i). Seismic Refraction Test ii). Horizontal Block Test iii). Electrical Resistivity Method

7. Attempt any one part of the following: 7 x 1 = 7

(a)	Explain earth pressure theories in detail.
(b)	A soil has a liquid limit of 25% and a flow index of 12.5%. If the plastic limit 15%, determine the plasticity index and toughness index. If the water content of the soil in its natural condition in the field is 20%, find the liquidity index and relative consistency.