

**B.TECH.**  
**(SEM V) THEORY EXAMINATION 2022-23**  
**ENGINEERING GEOLOGY**

*Time: 3 Hours*

*Total Marks: 100*

**Note:** Attempt all Sections. If you require any missing data, then choose suitably.

**SECTION A**

**1. Attempt all questions in brief. 2x10 = 20**

- (a) Define Streak of a mineral.
- (b) What is XRD analysis?
- (c) Genetically classify rocks into three major rock groups.
- (d) What are vesicular structures found in igneous rocks?
- (e) Differentiate between mineral and rock.
- (f) Write down the factors which promote alkali aggregate reaction?
- (g) Show parts of a fold with neat sketch?
- (h) Enlist the different earthquake zones of India.
- (i) Define aquiclude.
- (j) What are artesian wells?

**SECTION B**

**2. Attempt any three of the following: 10x3 = 30**

- (a) What is rock mechanics? Discuss the scope of application of rock mechanics in engineering geology.
- (b) Write down the classification of sedimentary rock?
- (c) Discuss 'cleavage' and 'hardness' of minerals
- (d) Discuss about the classification and causes of joints?
- (e) Define Aquifer? Distinguish between confined, unconfined aquifer

**SECTION C**

**3. Attempt any one part of the following: 10x1 = 10**

- (a) Highlight the importance of engineering geology in civil engineering works.
- (b) What are dykes and sills and how are they formed? Illustrate the following with block diagram.

**4. Attempt any one part of the following: 10 x1 = 10**

- (a) What is metamorphism? Discuss the various agents of metamorphism.
- (b) Discuss the various structures of sedimentary rocks.

5. **Attempt any *one* part of the following:** **10x1 = 10**
- (a) What is grouting? Discuss the influence of rock types, rock structures and nature of materials in grouting.
  - (b) What are pozzolonic material? Discuss the various types of natural and artificial pozzolana.
6. **Attempt any *one* part of the following:** **10x1 = 10**
- (a) What is an unconformity? Discuss its classification.
  - (b) Discuss the causative factors of an earthquake. Illustrate and explain different types of seismic waves, focus, epicenter and focal depth of an earthquake caused by block movement.
7. **Attempt any *one* part of the following:** **10x1 = 10**
- (a) Describe the seismic method of geophysical study. How does it help in the evaluation of subsurface geology?
  - (b) What is the source of groundwater? Write short notes on Perched water, Vadose water, Juvenile water and Connate water.

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