

B. TECH.
(SEM-V) THEORY EXAMINATION 2018-19
GEOENVIRONMENTAL ENGINEERING

*Time: 3 Hours**Total Marks: 70***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 7 = 14**

- a. What do you mean by soil mineralogy?
- b. Define the term hydrogeology.
- c. Explain the concept of double layer in soil-water interactions.
- d. Give four applications of geoenvironmental engineering.
- e. Explain the importance of ground water.
- f. What is the role of soil in waste containment?
- g. Define EIA.

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

- a. 'Soil has multiphase behavior.' Comment on this statement.
- b. Explain site characterization for waste contaminant. Also give the risk assessment of contaminated site.
- c. Enlist the use of GPR for site selection.
- d. What are various sources of ground water contamination? Explain in detail.
- e. What are factors affecting retention and transport of contaminants?

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

- (a) Explain the concept of soil-water contaminant interactions. Also explain its implications.
- (b) Explain the scope of geoenvironmental engineering as a civil engineer view.

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

- (a) What are the different components of waste containment system? Also give its stability issues.
- (b) Write short note on;

- i. Importance of soil physics

OR

- ii. Soil Chemistry

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

- (a) Explains various steps involved in site selection based on Environmental Impact Assessment.
- (b) How will you classify the various environmental geotechnical problems? Explain in detail. What are their relevant disadvantages with these problems?

6. Attempt any *one* part of the following:

7 x 1 = 7

- (a) Discuss in detail the basic aim for the development of geo-environmental technologies.
- (b) How can you improve the soil by the injection processes? Also write the name of the various chemicals used in this process. Also discuss how this technique is better than the other techniques used for soil improvement.

7. Attempt any *one* part of the following:

7 x 1 = 7

- (a) How can you correlate the various environmental cycles with the geotechnological behavior of soils? Explain in detail.
- (b) Write the various procedures of the site investigation for the detection of sub-surface contamination. Compare these methods with the help of their respective advantages and disadvantages.