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Question Paper Code: ACE003



**INSTITUTE OF AERONAUTICAL ENGINEERING**  
(Autonomous)

Four Year B.Tech III Semester End Examinations (Regular) - November, 2018

Regulation: IARE – R16

**ENGINEERING GEOLOGY**

**Time: 3 Hours**

**(CE)**

**Max Marks: 70**

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**Answer ONE Question from each Unit**

**All Questions Carry Equal Marks**

**All parts of the question must be answered in one place only**

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**UNIT – I**

1. (a) What is the significance of engineering geology in major civil engineering projects? [7M]
- (b) Distinguish between physical and chemical weathering and Write the importance of weathering with reference to dams and tunnels. [7M]
2. (a) What is weathering? Write a note on Biological weathering of rocks. [7M]
- (b) Explain the effects of weathering conditions importance for construction of reservoir. [7M]

**UNIT – II**

3. (a) List down the physical properties used in identification of minerals. Explain any five physical properties of minerals. [7M]
- (b) Distinguish between texture and structures of rocks. How do you distinguish igneous, sedimentary and metamorphic rocks in the field? [7M]
4. (a) Explain the physical properties of the following minerals. [7M]
  - i. Talc
  - ii. Calcite
  - iii. Asbestos
- (b) Distinguish between dyke and sill. Write the physical properties of granite and sandstone. [7M]

**UNIT – III**

5. (a) What is a fold? Explain the types of folds and their bearing on the engineering construction. [7M]
- (b) Write short notes on: [7M]
  - i. Strike and dip
  - ii. Out crop
  - iii. Bedding

6. (a) Write a brief note on exploration of groundwater and types of aquifers. [7M]  
(b) What are the causes and effects of earthquakes. Explain in detail about classification of earthquakes. [7M]

**UNIT – IV**

7. (a) List down the types of dams. What is the influence of geology in their selection? [7M]  
(b) Explain how geological factors have influence on water tightness and life of reservoir. [7M]
8. (a) Describe the seismic methods and field arrangements used in site exploration with sketches. [7M]  
(b) Write short notes on: [7M]  
i. Geothermal method  
ii. Magnetic method  
iii. Radiometric method

**UNIT – V**

9. (a) Explain the following in detail. [7M]  
i. Applications of tunneling  
ii. Over break  
iii. Economical aspects of tunneling  
(b) Describe the geological conditions necessary for construction of tunnels. [7M]
10. (a) What do you understand about tunneling in hard rocks and soft ground? [7M]  
(b) Explain the safety and stability of tunnel when it is encountering folds and faults along its axis with neat sketches. [7M]

