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Question Paper Code: ACE003



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

B.Tech III Semester End Examinations (Supplementary) - February, 2018

Regulation: IARE – R16

## ENGINEERING GEOLOGY

(Civil Engineering)

Time: 3 Hours

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) Describe any two cases of failure of civil engineering structures from geological point of view. [7M]  
(b) What is erosion. Describe the erosional features created by sand blasting. [7M]
2. (a) List and comment the important agents of weathering. Illustrate with an example for the rock. [7M]  
(b) Give a brief account of different branches of geology which plays a vital role in civil engineering. [7M]

### UNIT – II

3. (a) What are rock forming minerals? Give physical properties for the following minerals with their chemical composition and engineering uses. [7M]
  - i. Quartz
  - ii. Muscovite Mica
  - iii. Calcite(b) What are metamorphic rocks? What elements would you choose to classify the metamorphic rocks and how these are utilized for engineering? [7M]
4. (a) Write an explanatory note on the following physical properties with relevant examples. [7M]
  - i. Diaphaneity in minerals
  - ii. Hardness in minerals
  - iii. Cleavage in minerals(b) Compare and contrast between the following pairs of sedimentary rocks. [7M]
  - i. Conglomerate and Shale
  - ii. Sandstone and Limestone

### UNIT – III

5. (a) What is earthquake and how would you classify the earthquake. [7M]  
(b) Express the various types of faults with neat sketches and indicate the affects for civil engineering considerations. [7M]
6. (a) Delineate briefly with neat sketches. [7M]  
i. Parts of fault  
ii. Out crop  
iii. Dip and strike  
(b) Explain the causes of earthquake and write down the disasters affected by earthquake? [7M]

### UNIT – IV

7. (a) Describe the different types of dams with neat figures. Clearly mention when a particular type of dam is preferred. [7M]  
(b) State the factors contributing to the successful formation of a reservoir behind a dam. [7M]
8. (a) write a brief note on the structure of dam with a neat sketch. How could you determine the problems associated with dam sites? [7M]  
(b) Explain in detail electrical resistivity survey for groundwater exploration. [7M]

### UNIT – V

9. (a) Describe the influencing geological factors for the alignment of a tunnel. [7M]  
(b) Give a detailed description of rocks which permit tunneling without problems. [7M]
10. (a) Discuss the tunnels in tilted strata and mention the uses of tunnels. [7M]  
(b) What are tunnels? Discuss the position of tunneling in unconsolidated rocks. [7M]

