

Total No. of Questions : 6]

SEAT No. :

[Total No. of Pages : 3

**P1687**

**[4859]-18**

**B.E. (Civil)**

**ADVANCED ENGINEERING GEOLOGY WITH ROCK MECHANICS  
(2008 Course) (Semester-II) (Elective-III)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Answer to the two sections should be written in separate books.*
- 3) *Figures to the right indicate full marks.*
- 4) *Neat diagrams should be drawn wherever necessary.*

**SECTION-I**

**Q1)** a) Engineering significance of Precambrian Metamorphic Rocks in Maharashtra State. [8]

b) Field Characters of dykes in Maharashtra. [4]

c) Explain in brief varieties of tachlytic basalt and their field characters. [6]

OR

a) Engineering significance of Precambrian Secondary Rocks in Maharashtra State. [8]

b) Explain varieties of volcanic breccias. [4]

c) Write in detail on Region 2. [6]

**Q2)** a) Dams on Limestone and Quartzites. [8]

b) Discuss with suitable examples, suitability of compact basalts and amygdaloidal basalts from dam foundation point of view. [8]

OR

a) Treatment to given to a dyke crossing dam alignment. Explain with suitable case histories. [8]

b) Discuss in detail geological conditions resulting to tail channel erosion Maharashtra state. Only mention case histories of dams. [8]

**P.T.O.**

**Q3)** Write notes on:

- a) Scarcity of Sand in Deccan traps area. [4]
- b) Influence of Climate on Soil formation. [4]
- c) Groundwater Reservoirs. [4]
- d) In Situ Weathering. [4]

OR

- a) Water bearing characters of Dykes. [4]
- b) Residual Soils of Maharashtra State. [4]
- c) Chances of getting ground water along flow contacts. [4]
- d) Watershed development. [4]

### **SECTION-II**

- Q4)**
- a) Permeability of rock mass. [5]
  - b) Compressive strengths of rock mass. [6]
  - c) Elasticity of rock mass. [3]
  - d) Stand up time of a rock mass during tunneling. [4]

OR

- a) Only mention various rock mass classification systems. Discuss in detail Rock Mass Rating (RMR) classification. [12]
- b) Explain in brief Electrical Resistivity method with neat sketch. [6]

- Q5)**
- a) Tunneling through Compact Basalts. [8]
  - b) Safe Bearing Capacity of bridge. [4]
  - c) Tunnel through fractures. [4]

OR

- a) Preliminary surveys that are carried out while locating a bridge. [8]
- b) Difficulties to be faced while tunneling in folded and faulted strata. [8]

- Q6)** a) Treatment to be given to fault zone crossing dam alignment. Give examples. [8]
- b) Foundation of Monumental buildings. [4]
- c) Filled Grounds. [4]

OR

- a) Role of Geology in Urban Planning. [4]
- b) R.I.S. and Dams. [4]
- c) Suitability of Compact basalt as a construction material. [8]

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