Total No. of Questions : 6]

SEAT No. :

P1517

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B.E. (Civil Engg.)

ADVANCED ENGINEERING GEOLOGY WITH ROCK MECHANICS

(Elective - III) (2008 Pattern) (Semester - II)

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) Explain the characteristics of older secondary rocks in Maharashtra State in terms of their distribution, engineering properties with suitable examples. **[8]**

b) Nasture of tachylytes in Deccan Trap area. **[6]**

c) Pinching and bulging of dykes in deccan trap area. **[4]**

OR

a) Explain the characteristics of older metamorphic rocks in Maharashtra State in terms of their distribution, engineering properties with suitable examples. Field Characters of dykes in Maharashtra. **[8]**

b) Groups of Basaltic flows. **[6]**

c) Field Characters of Fractures. **[4]**

Q2) a) Discuss in detail any two case histories of dams on Maharashtra where tail channel erosion is occurring. **[9]**

b) Treatment to given to a dyke crossing dam alignment. Explain with suitable case histories. **[7]**

OR

P.T.O.

a) Discuss in detail case histories of Varasgaon and Mula dam sites where economy has been achieved. **[9]**

b) Dams on Limestone and Quartzites. **[7]**

Q3) Write notes on:

a) Multi aquifer system in Deccan Trap area. **[4]**

b) Granular disintegration. **[4]**

c) Water bearing characters of dykes. **[4]**

d) Amygdaloidal Basalt as an aquifer. **[4]**

OR

a) Transported soils of Maharashtra state. **[4]**

b) Occurrence of sand in Deccan Trap area. **[4]**

c) Any two methods of conservation of water. **[4]**

d) Compact Basalt as an aquifer. **[4]**

SECTION - II

Q4) a) Significance of RQD in classification of rocks. Explain with suitable examples. **[7]**

b) Describe any two mechanical properties of rock masses. **[7]**

c) Electrical resistivity method. **[4]**

OR

a) Explain 'Q' System classification of rock masses. **[7]**

b) Describe any three physical properties of rock masses. **[7]**

c) USBM classification of rock masses. **[4]**

Q5) a) The feasibility of jointed quartzite from tunneling point of view with case histories. **[6]**

b) What are the prerequisite of rock masses from bridge foundation point of view? Explain with suitable case histories. **[10]**

OR

a) Location and depth of drill holes from bridge foundation point of view. **[6]**

b) Explain tunneling conditions through Amygdaloidal basalts. Add a note on Stand up time of a rock mass during tunneling. **[10]**

Q6) a) Width of fault zone. **[4]**

b) Open excavation in city areas. **[4]**

c) Suitability of Deccan trap basalt as a construction material. **[8]**

OR

a) Artificial grounds. **[4]**

b) Dyke rock as construction material. **[4]**

c) Relationship between dams and earthquakes. **[8]**