

Total No. of Questions : 6]

SEAT No. :

**P3862**

**[5561]-508**

[Total No. of Pages : 2

**B.E.(Civil Engg.)**

**ADVANCED ENGINEERING GEOLOGY WITH ROCK MECHANICS  
(2015 Course) (Semester - I) (Elective - I)**

**Time : 2½ Hours]**

**[Max. Marks : 70**

**Instructions to the candidates:**

- 1) *All questions are compulsory.*
- 2) *Black figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*

**Q1) a) Describe the Varieties of Deccan Trap Basalt. [6]**

**OR**

**b) Describe the physiographic divisions of India. [6]**

**Q2) a) Enlist various parameters of morphometric analysis of river basin. [7]**

**OR**

**b) Explain process of decomposition in soil formation. [7]**

**Q3) a) Describe various Seismic zones of India. [7]**

**OR**

**b) Write a note on amygdaloidal basalt as construction material. [7]**

**Q4) a) What are various physical properties of rocks. [8]**

**b) Calculate RQD recovery and Core recovery from following table. [8]**

Run in m	Piece No.	Length in cm.	Nature of fracture
3-6m	1	10	J
	2	11	J
	3	100	M
	4	45	M
	5	55	M
	6	13	J
	7	50	J
	8	6	J
	9	8	J
6-9m	10	90	M
	11	80	M
	12	120	M
	13	10	M

**OR**

**P.T.O.**

- a) Explain in detail Bieniawski's Geomechanical classification. [8]
- b) Calculate Apparent resistivity values at different depth zones. [8]

Sr.No	R	a	$2\pi aR$
1	1.87	1	
2	1.66	2	
3	1.47	3	
4	1.32	4	
5	1.19	5	
6	1.09	10	

- Q5)** a) Discuss relationship between local Geology and location of Spillway in Deccan Trap. [10]
- b) Write a note on Engineering significance of Tachylytic Basalt. [7]

OR

- a) Write a note on Engineering significance of fracture from dam foundation point of view Give case history. [10]
- b) What treatment is to be given to a dyke occurring at a Dam site. [7]

- Q6)** a) Explain in brief safe bearing capacity during bridge construction. [10]
- b) Describe various unfavorable field characters of rocks during tunneling. [7]

OR

- a) Discuss with suitable examples suitability of compact basalts from tunneling point of view. [10]
- b) Whether the tunnels are suitable through limestone and quartzite. [7]

