

S.E Civil - III

e'

30

40

28.11.23

Total Marks : 80

(3) Hours

- N.B. 1. Question No. 1 is compulsory  
 2. Attempt any Three questions out of remaining Five questions.  
 3. Draw neat labeled diagrams wherever necessary.  
 4. All the parts of a question should be grouped together.  
 5. Figures to the right indicate marks

Q.1a Answer the following-

(i) Give characteristic properties and use of the following minerals-

Hematite  
 Orthoclase  
 Gypsum  
 Quartz  
 Talc

05

Q.1b Define the following terms-

- (i) GSI  
 (ii) Lining in tunnel  
 (iii) Fissure Eruption  
 (iv) Mohorovicic discontinuity  
 (v) Solifluction

05

Q.1c Explain with the help of labeled diagram

- (i) Artesian aquifer  
 (ii) Dip and strike of geological structures  
 (iii) Parts of gravity dam  
 (iv) Laws of Stratigraphy  
 (v) Columnar joints

10

Q.2(a) Describe erosional and depositional landforms created by running water

10

(b) What is plate Tectonic Theory? With the help of diagram Explain types of plate boundary with associated features.

10

Q.3(a) Describe classification and texture of Igneous rocks with neat sketch.

10

(b) What is fault? Explain types of faults with diagram and correlate it with types of plate boundary.

10

Q.4(a) A coal bearing horizon is exposed on horizontal ground. It dips  $45^\circ$  eastward and the width of the outcrop is 280m. Determine its True Thickness and vertical thickness.

06

(b) What is unconformity? Elaborate types of unconformity and its significance at construction site.

05

(c) What should be the precautionary measures while doing construction in seismic prone areas?

05

(d) Describe the products of volcanic eruption

04

39014

Page 1 of 2

DEE0127F084DC6022DF2010D220ED710

SE (vi) - III

28-11-23

40

- Q.5(a) What is an aquifer? Describe cone of depression (exhaustion) in an aquifer and its significance in purification of ground water. 10
- (b) Define RQD and Core Recovery, Calculate RQD and Core Recovery from the given data and comment on the suitability of rocks for foundation purpose. 10
- Total run 2.5m.

Sample No.	Length of the core in cms	Nature of the lower end of the core sample	Sample No.	Length of the core in cms	Nature of the lower end of the core sample
a	30	N	i	34	N
b	10	N	j	6	M
c	25	N	k	2	N
d	06	M	l	24	N
e	02	M	m	4	M
f	01	N	n	06	N
g	29	N	o	04	M
h	21	M	p	05	N

- Q.6 (a) Classify the rock according to Geomechanics (RMR) classification for a Rock having UCS of 200Mpa and RQD of 70% with average spacing of discontinuity of 1000mm which is slightly rough in nature and highly weathered. The Strike is perpendicular to the tunnel axis and drive with dip is 25°. Also 8 lit/min groundwater inflows the tunnel length per 10m. Calculate the RMR value of the rock and state the condition of rock for tunnel construction. 10
- (Note: Table containing RMR Classification parameters should be provided to solve Question).
- (b) What are the forces acting on a dam? Explain influence of lithology and geological structure for the success of a dam? 10

\*\*\*\*\*