

J-21-0074

B. Tech. EXAMINATION, 2021

Semester VI (CBCS)

ENGINEERING GEOLOGY AND ROCK
MECHANICS

CE-605

Time : 2 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D.
Q. No. **9** is compulsory.

Section A

1. (a) Briefly explain the importance of geology in civil engineering. 7½
- (b) Describe the procedure of glacial erosion with the help of a neat sketch. 7½

2. (a) What do you understand by the terms texture and structure of rocks ? $7\frac{1}{2}$
- (b) What are Sedimentary Rocks ? How are they formed in nature? $7\frac{1}{2}$

Section B

3. (a) What are the general geological characteristics of the area that must be known before starting a tunnel project in that area ? $7\frac{1}{2}$
- (b) Explain the types of forces acting on a dam. $7\frac{1}{2}$
4. (a) Describe briefly about the causes of faulting. $7\frac{1}{2}$
- (b) Write a brief note on tunnels and types of tunnels. $7\frac{1}{2}$

Section C

5. (a) Explain the need of rocks mechanisms. $7\frac{1}{2}$
- (b) What are rocks ? How are they classified ? $7\frac{1}{2}$
6. Describe any *two* methods for determination of shear strength of rock samples. **15**

Section D

7. What are the *in-situ* tests for testing the deformability of a rock mass ? Explain them briefly. **15**
8. (a) What are the different types of grouting ? $7\frac{1}{2}$
- (b) Discuss the design principles of rock bolt system. $7\frac{1}{2}$

(Compulsory Question)

9. Write short notes on the following :
- (i) Gravity dam
 - (ii) Sedimentary rocks
 - (iii) Folds
 - (iv) Rocks bolting
 - (v) Anisotropy
 - (vi) Guniting
 - (vii) Chemical grouting
 - (viii) Rock reinforcement
 - (ix) Weathering
 - (x) Joints. **$1\frac{1}{2} \times 10 = 15$**