APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER M. TECH DEGREE EXAMINATION

Civil Engineering

(Geomechanics & Structures)

04 CE 7305 – Rock Mechanics

Max. Marks : 60 Duration: 3 Hours

PART A

Answer All Questions

Each question carries 3 marks

1. Explain the significance of "porosity" of rocks.
2. Explain various defects of rock-masses.
3. Explain Constant Elastic-Strain Energy theory.
4. Explain why stresses are independent on size of excavation.
5. What are the recommendations for foundations on rocks as per IS 12070-1987
6. Explain the factors influencing the bearing capacity of foundation in rocks
7. Explain various methods of ventilation in tunnels.
8. What are the various cross-sectional shape of tunnels?

PART B

Each question carries 6 marks

9. Explain in detail with sketches about flexure strength testing of rocks.

OR

10. Explain any one geophysical method of rock exploration.

11. Explain the effect of discontinuities on rock strength with relevant cases.

OR

12. Explain the behavior of rock sample under hydrostatic compression
13. Explain Griffith's theory of fracture initiation in rock mass.

OR

14. Explain Kelvin Rheological Model.
15. Describe briefly the plastic behaviour around tunnels.

OR

16. Write a short note on influence of shape and orientation of a rock excavation.
17. What are the design requirements of foundation in rocks?

OR

18. Explain different types of failure of foundations resting on rocks.
19. Explain any three shapes given for the tunnels.

OR

20. Explain any two methods of tunneling in hard rocks.