

Code No: RT42262C

R13**Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

TUNNELING ENGINEERING

(Mining Engineering)

Time: 3 hours

Max. Marks: 70

*Question paper consists of Part-A and Part-B**Answer ALL sub questions from Part-A**Answer any THREE questions from Part-B*

PART-A (22 Marks)

1. a) List the engineering geological considerations in tunneling through major tectonic thrust zones. [4]
- b) List the tunneling methods in all types of rock masses. [3]
- c) Explain the various types of supports used in tunnels. [4]
- d) Describe the rock quality designation (RQD). [4]
- e) List the illumination values on different areas of pit top, pit bottom, roadways, working areas, loading points. [4]
- f) List the applications of FLAC 3D modeling in Rock Mechanics. [3]

PART-B (3x16 = 48 Marks)

2. a) Explain the geological considerations in tunneling. [8]
- b) Explain the Influence of geological aspects on construction of tunnels. [8]
3. a) Describe the tunnel boring machine with neat sketch. [8]
- b) Explain the stress distribution around the roadway with neat sketch. [8]
4. a) Describe the hydraulic prop with neat sketch. [8]
- b) Explain the anyone new Australian tunneling method. [8]
5. a) Explain the Terzaghi's rock mass classification method. [8]
- b) Explain the RSR (Rock structure rating) on various types of rocks. [8]
6. a) Describe the submersible pump with neat sketch. [8]
- b) Describe the air-screw fan with sketch. [8]
7. a) List the various uses and limitations of FLAC-3D and FLAC-2D. [8]
- b) Explain the back analysis of tunnel construction using FLAC-3D. [8]