

Printed Pages : 2



ECE-044

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 100759

Roll No.

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B. Tech.

(SEM. VII) (ODD SEM.) THEORY
EXAMINATION, 2014-15
TUNNEL ENGINEERING

Time : 3 Hours]

[Total Marks : 100

Note: Attempt all questions.

1. Answer any two parts : **10x2=20**
- (a) What informations are collected in geological investigations for tunnels?
 - (b) What is Tunnel ? Discuss the advantages and disadvantages of tunnels as a means of communication.
 - (c) How tunnels are classified ? Explain briefly how you would transfer the centre line and grade of proposed tunnel from the ground surface to the interior of the tunnel with their neat sketches.
2. Answer any two parts : **10x2=20**
- (a) What factors govern the quality of explosives to be used for blasting of rock for tunnelling ? Also write about the precautions during the handling and storing explosives. Explain briefly springing method of blasting.

- (b) Differentiate between running ground, soft ground and firm ground. What do you understand by shield tunnelling and where this is used?
- (c) Describe various types of drill-bits. What are the advantages of detachable bits.
- 3. Answer any two parts: 10x2=20**
- (a) Illustrate with sketches how timbering differs in various methods of tunnelling in soft ground. Give advantages and disadvantages of each.
- (b) Explain principle of compressed air tunnelling. what precautions are necessary for working in compressed air.
- (c) Write short notes on:-
- (i) Man lock
 - (ii) Decompression sickness
 - (iii) Air locks
 - (iv) Shield
 - (v) Well points
- 4. Answer any two parts: 10x2=20**
- (a) Explain auger bore micro tunnelling in detail.
- (b) What is pre jacking ? Give history of pre-jacking
- (c) Give advantages and limitations of pipe jacking and micro tunnelling.
- 5. Answer any two parts: 10x2=20**
- (a) How will you proceed to handle an unexpected source of water during tunnelling operations.
- (b) What is necessity of ventilation and dust control in tunnelling.
- (c) What measures are taken for the prevention of fire in tunnels?