

B. TECH.
(SEM VII) THEORY EXAMINATION 2018-19
TUNNEL ENGINEERING

*Time: 3 Hours**Total Marks: 100***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

- 1. Attempt all questions in brief. 2 x 10 =20**
- a. What is tunnel? Discuss the classification of tunnels on the basis of their alignment.
 - b. What are survey operations for a tunnel?
 - c. Explain lightning and ventilation in tunnel.
 - d. Write short note on “Safety precautions in tunneling”.
 - e. Differentiate between “Running Ground and “Soft Ground”.
 - f. What do you mean by micro tunneling in India?
 - g. Explain NATM in details.
 - h. Describe method drill and blast with their benefits.
 - i. What do you mean by hard rock tunneling?
 - j. What are the different shapes of tunnel?

SECTION B

- 2. Attempt any three of the following: 10 x 3 = 30**
- a. What are the methods involve in tunneling of rocks?
 - b. What do you mean by air locks? Define various types of locks.
 - c. How will you proceed to handle an unexpected source of water during tunneling.
 - d. Discuss the methods of tunneling in soft ground briefly.
 - e. What do you mean by ventilation and also describe the methods of ventilation.

SECTION C

- 3. Attempt any one part of the following: 10x 1 =10**
- (a) What information's are collected in geological investigations for tunnel?
 - (b) Define the tunnel and give historical development of tunnel in brief.
- 4. Attempt any one part of the following: 10 x 1 =10**
- (a) Write short note on following-
i)Fore poling method ii)Liner plate method
 - (b) Define the various types of drilling equipment's .with their suitable sketch?
- 5. Attempt any one part of the following: 10 x 1 =10**
- (a) What are the constructions methods involve in constructing tunnel?
 - (b) Define the various types of drilling equipment's .with their suitable sketch.
- 6. Attempt any one part of the following: 10x 1 =10**
- (a) What factor governs the quality of explosives to be used for blasting of rocks? Also write the precaution used during explosion
 - (b) Describe various types of drill bits. What are the advantages of detachable bits
- 7. Attempt any one part of the following: 10 x 1 =10**
- (a) Define the various types of drilling equipment's .with their suitable sketch?
 - (b) Give advantage and limitation of pipe jacking and micro tunneling.