

22403

23242

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.
  - (4) Assume suitable data, if necessary.

**Marks**

**1. Attempt any FIVE of the following :**

**10**

- (a) List the modes of Transportation system.
- (b) List two merits of Roadways over Railways.
- (c) Define can't Deficiency & Negative can't.
- (d) Give two purpose of station yard.
- (e) Give any two functions of wing wall.
- (f) List the types of culvert.
- (g) Classify tunnels based on its purpose.

**2. Attempt any THREE of the following :**

**12**

- (a) Explain the requirement of Standard Rail Joint.
- (b) Write the ideal requirement of permanent way.
- (c) Describe in brief caisson foundation for a bridge with neat sketch.
- (d) Explain the function of Ballast.



- 3. Attempt any THREE of the following : 12**
- (a) Explain function of bridge bearing.
  - (b) Describe the factors affecting selection of bridge construction.
  - (c) Explain the function of following parts of bridge :
    - (i) Pier
    - (ii) Abutment
    - (iii) Bearing
    - (iv) Wing wall
  - (d) Write two advantages and two disadvantages of Prestressed bridge.
- 4. Attempt any THREE of the following : 12**
- (a) Describe High level & Low level causeway.
  - (b) Suggest suitable situation for Raft foundation & Pile foundation.
  - (c) State necessity of providing tunnel shaft.
  - (d) Explain the sequential steps involved in bridge construction.
  - (e) Differentiate between Permanent bridge and Temporary bridge.
- 5. Attempt any TWO of the following : 12**
- (a) Explain the necessity of tilting of Rail with neat sketch.
  - (b) Describe with neat sketch
    - (i) Diamond crossing
    - (ii) Cross over
  - (c) Describe survey work required for proposed tunnel construction work.
- 6. Attempt any TWO of the following : 12**
- (a) Explain the function of any six tools required for rail track maintenance.
  - (b) Describe in brief with neat sketch construction of Tunnel with needle beam method.
  - (c) Explain Tunnel ventilation using Mechanical method.
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