

22403

24225

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define Rain Gauge.
- (b) Write two merits of roadway over railway.
- (c) Classify the bridge according to function.
- (d) Define Canting of Rail.
- (e) Write any two functions of wing wall.
- (f) State any two merits of tunneling.
- (g) Write necessity of temporary bridge.

2. Attempt any THREE of the following :

12

- (a) Explain coning of wheels with neat sketch.
- (b) Draw neat c/s of broad gauge single track in embankment and label its parts.
- (c) Explain four types of rail joint.
- (d) Describe in brief Caisson foundation for a bridge with neat sketch.



- 3. Attempt any THREE of the following : 12**
- (a) Mention the causes of creep of rail.
 - (b) Explain fish plate with neat label sketch.
 - (c) Define the terms :
 - (i) Afflux (ii) Effective span
 - (iii) Economic span (iv) Wind wall
 - (d) Explain any four types of tunnel as per shape.
- 4. Attempt any THREE of the following : 12**
- (a) Define gradient. Give types of gradient. Explain any one.
 - (b) Draw a neat sketch of diamond crossing.
 - (c) Explain with neat sketch prestressed girder bridge.
 - (d) Describe the inspection of bridge.
 - (e) State factors affecting site selection for bridge.
- 5. Attempt any TWO of the following : 12**
- (a) Explain prestressed girder bridge with the help of neat sketch.
 - (b) Explain in brief transferring of centerline is inside the tunnel with a neat sketch.
 - (c) Explain mechanical method of tunnel ventilation.
- 6. Attempt any TWO of the following : 12**
- (a) Define coning of wheel. Explain behaviour of coned wheel of curved path with sketch.
 - (b) Enlist types of bridge foundation. Explain any two types of bridge foundation along with suitability and sketches.
 - (c) Explain needle beam method of tunneling in soft rock with sketch.
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