

17418

21718

3 Hours / 100 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) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) Attempt any SIX of the following: 12
- (i) State role of transportation in development of India.
 - (ii) Enlist two characteristics of road transport.
 - (iii) Define gradient and crossing.
 - (iv) State any two duties of Ganger.
 - (v) Enlist various modes of transportation.
 - (vi) Define superstructure and substructure of bridge.
 - (vii) State any two functions of wing wall.
 - (viii) State any two advantages of tunnel.

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- b) **Attempt any TWO of the following:** **8**
- (i) State causes and effects of creep of rail.
 - (ii) Draw sectional elevation of bridge show all components.
 - (iii) State necessity of bridge maintenance.
2. **Attempt any FOUR of the following:** **16**
- a) Write factors affecting rail alignment.
 - b) What is Marshalling yard? State its functions and different types.
 - c) State any four necessities of periodic track maintenance.
 - d) Define bridge alignment and two types of bridge alignment.
 - e) Write any four functions of bridge bearings.
 - f) Compare permanent and temporary bridges.
3. **Attempt any TWO of the following:** **16**
- a) Draw line sketches of points and crossing-scissor cross over and diamond crossing.
 - b) Draw standard cross section of B.G. Double track in cutting and name its component parts.
 - c) Explain rail gauge along with sketch compare meter gauge, broad gauge and narrow gauge.
4. **Attempt any TWO of the following:** **16**
- a) Explain eight factors affecting selection of site of bridge with their importance.
 - b) Explain any four types of bridge foundations along with its suitability and sketches.
 - c) Explain functions, requirement and types of piers along with neat sketch.

5. Attempt any TWO of the following:**16**

- a) Write a short note on shafts for tunnel.
- b) Enlist various operations involved and different methods adopted for tunnelling in soft rock. Explain any one method with a suitable sketch.
- c) What is tunnel lining? State the different types of linings adopted in tunneling with the materials used.

6. Attempt any FOUR of the following:**16**

- a) Differentiate between flying and floating bridge.
 - b) State types of tunnels used for highways and railways with the sketch.
 - c) Explain the process of transferring centre line inside of the tunnel.
 - d) State objectives of tunnel ventilation. Enlist methods of tunnel ventilation.
 - e) Draw box type, circular, segmental shape and hose shoe shape tunnels. Label the parts.
 - f) Explain tunnel investigation in detail.
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