

17418

11718

3 Hours / 100 Marks

Seat No.

--	--	--	--	--	--	--	--	--	--

- 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. a) **Attempt any SIX of the following:** **12**
- (i) Define 'Transportation system'.
- (ii) State Importance of Cross Drainage Works.
- (iii) Give the classification of Indian Railways.
- (iv) Define Cant deficiency.
- (v) Define Afflux.
- (vi) Define Culvert.
- (vii) Enlist two purpose of tunnel lining.
- (viii) State any two uses of tunnels.

P.T.O.

- b) **Attempt any TWO of the following:** **8**
- (i) Explain the role of transportation in development of nation.
 - (ii) What is rail alignment? State the factors governing rail alignment.
 - (iii) Draw the plan and Section Bridge Label all the parts.
- 2. Attempt any FOUR of the following:** **16**
- a) Explain with neat sketch 'coning of wheel'.
 - b) Explain any four functions of rail fixtures and fastenings.
 - c) Define point and crossing.
 - d) What are sleepers in railway engineering and give different functions of sleepers.
 - e) State the factors affecting selection of site of a bridge.
 - f) Define wing wall? State the functions of wing walls. Enlist different types of wing walls.
- 3. Attempt any TWO of the following:** **16**
- a) Explain creep of rails. State principle causes of creeps. How creep can be prevented.
 - b) State points to be considered while selection of site for a railway station.
 - c) Explain purpose of locomotive yards. State the requirements of locomotive yards. Draw a layout of rectangular Locomotive Yards.

- 4. Attempt any TWO of the following:** **16**
- a) State the functions of bridge bearings. State the types of Bridge bearings and explain any one.
 - b) State functions of Abutments and state requirements of good abutments.
 - c) Explain suspension bridge with neat sketch. State its advantages and disadvantages.
- 5. Attempt any TWO of the following:** **16**
- a) Explain Needle Beam Method with a neat sketch, also state its advantages.
 - b) With the help of neat sketch explain the procedure of transferring centre line inside the tunnel.
 - c) Mention various explosives used in tunneling. What precautions you will ensure while explosions?
- 6. Attempt any FOUR of the following:** **16**
- a) What is the necessity of tunnel ventilation.
 - b) List the commonly used drilling machines in tunnelling.
 - c) What is shaft? State the purpose of providing shaft.
 - d) State classification of Tunnels.
 - e) Explain with sketch, effective span, clear span, economical span and waterway of bridge.
 - f) Compare RCC bridges with steel bridges with respect to construction and maintenance.
-