



22302

12223

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) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) 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) List various types of urban roads.
- (b) Define camber and kerb.
- (c) Enlist various types of cambers.
- (d) Define flash point and fire point of bitumen.
- (e) State any two objectives of traffic volume study.
- (f) State any two causes of landslides.
- (g) Define : Catch water drains and cross drains.



**2. Attempt any THREE of the following : 12**

- (a) Classify the Roads according to Third Road Development Plan.
- (b) Define Speed limit. Give IRC recommendation for it.
- (c) Draw the cross section NH in cutting.
- (d) Define pavement. State two structural components with their functions.

**3. Attempt any THREE of the following : 12**

- (a) Explain ductility test on bitumen with a neat sketch.
- (b) State methods of cement concrete road construction. Explain any one in detail.
- (c) Enlist the types of Hill Road Curves. Explain any one with a neat sketch.
- (d) Enlist the types of Road signs. Explain regulatory road sign in detail.

**4. Attempt any THREE of the following : 12**

- (a) List the types of various traffic islands. Explain channelizing traffic island with a neat sketch.
- (b) List causes of Road Accidents. Draw collision diagram for side collision/ sweep, Rear end collision.
- (c) State the construction procedure of Hill roads.
- (d) Enlist the components of Hill roads and state the functions of each.

**5. Attempt any TWO of the following :****12**

- (a) Calculate the SSD for one way traffic in a single lane road. The design speed of the road is 75 kmph. Assume reaction time of a driver is 2.4 sec. & coefficient of friction is 0.5. Brake efficiency is 50%.
- (b) Draw the traffic signs for
  - (1) U-turn prohibited
  - (2) Compulsory ahead or turn right
  - (3) Narrow bridge
  - (4) Reverse bend right
  - (5) Petrol pump
  - (6) Height limit (3.5 m)
- (c) Explain the construction procedure of WBM roads.

**6. Attempt any TWO of the following :****12**

- (a) Enlist construction joints in CC road. Explain any two types of joints in CC Road with a neat sketch.
  - (b) What is water drain ? Explain sub-surface drainage with its types and draw its sketch.
  - (c) State the necessity and elaborate in detail, the special repairs of flexible and rigid pavements.
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