22302

12223

3 Hours / 70 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) 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.
