

313323

12526

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.
 - (8) Use of Steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Attempt any FIVE of the following : 10
- a) Classify roads according to Nagpur Road development plan.
 - b) State IRC recommendations for camber for cement concrete road and WBM road in low rainfall area.
 - c) Define sight distance.
 - d) State necessity of extraction test of bitumen.
 - e) Draw the road sign for load limit of 05 tonne.
 - f) State the components of hill road.
 - g) Name / state any two National highways passing through Maharashtra.

P.T.O.

- 2. Attempt any THREE of the following : 12**
- a) Define alignment. State factors affecting selection of an alignment.
 - b) Draw and label standard cross-section of National highway in embankment.
 - c) State factors affecting gradient of a road.
 - d) Define design speed and super-elevation provided for a road.
- 3. Attempt any THREE of the following : 12**
- a) State factors affecting camber of a given road.
 - b) State causes of landslide.
 - c) Differentiate Rigid and flexible pavement. (Minimum 08 point of difference)
 - d) Write the sequential steps / procedure to carry out test-softening point of Bitumen.
- 4. Attempt any THREE of the following : 12**
- a) Draw a neat labelled cross-section of a hill road.
 - b) Define traffic volume study. State its purpose. State its types.
 - c) State the causes of failure of flexible road pavement with sketch.
 - d) Explain subsurface drainage with side drains with suitable sketch.
 - e) State the sequential steps/procedure for repairing potholes in flexible pavement with sketch.

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

- a) State the purpose of providing permanent way or right of way, side slopes, road margin, side gutter, berms, temporary land in road construction.
- b) i) Draw neat labelled diagram explaining overtaking sight distance.
ii) State purpose of providing transition curve with diagram.
- c) Explain vertical curve with purpose and explain types of vertical curves.

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

- a) With neat labelled diagram write the sequential steps of construction of rigid pavement by Alternate Bay method.
 - b) Explain causes of landslides and preventive measure of landslides.
 - c) Draw neat sketch of clover leaf road intersection showing direction of movement of traffic by arrows.
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