17602

11819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. (A) Attempt any THREE of the following : **12**

(a) Enlist any four characteristics of road transport.

(b) Describe in brief classification of urban road.

(c) Enlist any two instruments used & two details to be collected while conducting reconnaissance survey.

(d) Enlist eight drawings required for road project.

(e) State the necessary of providing shoulder and write minimum width of shoulder as per IRC.

(B) Attempt any ONE of the following : **6**

(a) State IRC recommended values of camber for different types of road surface and enlist shapes of camber with sketch.

(b) Draw typical cross-section of national highway in embankment.

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

(a) Describe in brief objectives of preliminary survey.

(b) Define alignment. State requirements of ideal alignment.

(c) Define right of way and enlist any three factors on which right of way depends.

(d) State necessity of providing superelevation and write minimum and maximum superelevation values.

(e) Enlist test carried on aggregate and state requirement of aggregate in highway construction.

(f) Differentiate between Rigid and flexible pavement.

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

(a) Calculate S.S.D. for two way traffic on single lane road. The design speed of road is 70 kmph. Assume reduction time of driver 2 sec. and coefficient of friction 0.6.

(b) Draw neat sketch of overtaking zone with necessary provision of sign post.

(c) Discuss special consideration to be adopted while deciding alignment of hill road.

(d) Define : (i) bitumen, (ii) Tar. Enlist grades of bitumen & tar.

(e) Define cutback bitumen and enlist types of cutback bitumen.

4. (A) Attempt any THREE of the following : **12**

(a) Define :

(i) Lead

(ii) Lift

(iii) Borrow pit

(iv) Spoil bunk

(b) Define traffic control device and enlist various types of traffic control device.

(c) Define traffic volume study and state methods for counting traffic.

(d) State requirement of highway drainage system.

(B) Attempt any ONE of the following : **6**

(a) Describe in brief construction procedure of W.B.M. road.

(b) Draw neat sketch of

(i) Location of Joints in rigid pavement

(ii) Expansion Joint

(iii) Longitudinal Joint

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

(a) Draw following signs :

(i) Give way

(ii) Speed limit

(iii) Hair pin bend left

(iv) No parking

(b) Enlist four techniques of prevention and controlling of land slides.

(c) Describe in brief different types of gradient.

(d) Describe in brief methodology for Pothole repair in Bitumen road.

(e) Draw neat sketch of power shovel.

(f) State use of following in highway construction :

(i) grader

(ii) dragline

(iii) bulldozer

(iv) power shovel

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

(a) Enlist different types of roller and state two uses of roller.

(b) Enlist the component parts of Hot mix plant.

(c) Describe in brief drainage structures in hill road.

(d) Explain necessity of maintenance of road.

(e) Suggest suitable types of roller for comparting following :

(i) Clayey soil

(ii) Sandy soil

(iii) Gravel

(iv) Finishing of bitumen road
