**23124**

**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) Enlist the essential road user's characteristics to be considered in traffic engineering.

(b) List out the scope of traffic engineering.

(c) Enlist the factors affecting reaction time of driver.

(d) Enlist the methods of origin and destination study.

(e) Enlist the types of traffic signals.

(f) Define :

(i) Traffic control devices

(ii) Road signs

(g) Write any two points to be considered while erecting road signs.

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

   (a) Explain the uses of various carriageway markings.

   (b) Explain Manual method of collecting traffic volume count data.

   (c) Explain regulatory road signs with respect to definition, types and uses.

   (d) Define road markings. Give classification of road markings.

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

   (a) Define segregation. Give purposes of segregation of traffic.

   (b) Suggest the methods adopted for protection of tress.

   (c) Enlist the types of traffic islands. Describe any one with neat sketch.

   (d) Define street lighting. State necessity of street lighting.

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

   (a) Explain the factors affecting selection of type of trees.

   (b) Define collision accidents. Explain the types of collision accidents.

   (c) Describe condition diagram with the help of symbols of features for it.

   (d) Justify the need of legislation regarding safety.

   (e) Enlist the causes of road accidents.

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

   (a) Explain cumulative speed distribution method of representation of spot speed study.

   (b)   Draw following types of road signs :

      (i)    Narrow bridge

      (ii)   No stopping

      (iii)  Left Hair pin bend

      (iv)  3.5 m height limit

      (v)   Max. speed 50 km.

      (vi)  One way

   (c)   Describe the procedure of traffic volume count on any road intersection. Also write the method of representation of traffic volume count data.

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

   (a)   Describe Trial cycle method of computing signal time (General Signal design principles).

   (b)   Draw and explain any 6 types of Intersection at grade.

   (c)   Suggest preventive measures for avoiding road accidents.

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