The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note: Attempt five questions in all, selecting one question from each of the sections A, B, C and D and all the sub-parts of the questions in Section-E.

SECTION - A

1. (a) Write down the construction steps of Macadam's construction alongwith a typical cross-section. (10)

(b) What are the various surveys to be carried out before planning a highway system for a given area? Explain briefly. (10)

2. (a) Compare the Nagpur road plan and the second twenty year road plan, discuss the merits of each. (10)

(b) Explain how the road lengths of different categories for a state are determined for the year 2001, using the third road development plan concept. (10)

SECTION - B

3. (a) Write down the various factors affecting friction offered by pavement surface. (5)

(b) Draw a typical cross-section of a divided highway in urban area indicating the width of pavement, roadway and land. (7)

14706/1900 [P.T.O.]
(c) Derive an expression for finding the stopping sight distance of a vehicle at level. (8)

4. (a) Enumerate the various steps for practical design of super elevation. (10)

(b) A vertical summit curve is formed when an ascending gradient of 1 in 25 meet another ascending gradient of 1 in 100. Find the length of the summit curve to provide the required stopping sight distance for a design speed of 80 kmph. (10)

SECTION - C

5. (a) Indicate how the spot speed data are presented and the results used in Traffic engineering? (10)

(b) Explain various patterns of kerb parking with diagram. (10)

6. (a) Explain briefly the various design factor that are to be considered in rotary intersection design. (12)

(b) What are the advantages and disadvantages of Traffic signals? (8)

SECTION - D

7. (a) What are the various tests for judging the suitability of road aggregates? Discuss the objectives, their advantages and limitations? (12)

(b) Define the term 'Group Index' of soils. How it is obtained? (8)

8. (a) Discuss the desirable properties of bitumen. Compare tar and bitumen. (10)

(b) Write down the desirable properties of bituminous mixer in brief. (10)
9. Write short notes on the following:

(a) CRRI.

(b) Obligatory points.

(c) Cross-slope.

(d) Overtaking zones.

(e) Three E’s.

(f) Level of service.

(g) Grade Separated Intersections.

(h) Uses of rubber modified bitumen in bituminous mixer.

(i) Emulsions uses in road construction.

(j) Grade compensation on curves. (10×2=20)