

Seat  
No.

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मुद्रा- 001

**ELECTIVE - I**

**Highway, Projects Planning, Designing &  
Economic Evaluation (1051)**

**P. Pages : 2**

**Time : Three Hours**

**Max. Marks : 100**

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any five** questions.

1. a) Explain the necessity and objects of highway planning in India. 10  
b) Briefly outline the main features of various road patterns commonly in use. Explain with sketches the star and grid pattern. 10
2. Explain how the surface water is collected and disposed off in rural and urban roads. What are the special problems in drainage of surface water in hilly road ? Discuss ? 20
3. a) Discuss how the problem of road construction in water logged areas may be solved. 10  
b) Derive an expression for finding the stopping sight distance at level and at grades. 10
4. a) What are the objects of providing transition curves on the horizontal alignment of highway ? Explain. 10  
b) List the various types of transition curves used in highway. What is ideal transition curve used in highway. What is ideal transition curve ? Explain. 10
5. Discuss the various design factors controlling the vertical alignment of highway. 20
6. Explain the CBR method of pavement design. How is this method useful to determine thickness of component layers ? Discuss the advantages and limitations of CBR method of design. 20

7. a) Discuss the importance of highway economy studies. 10  
b) Explain briefly various factors affecting the vehicle operation cost. 10
8. Write short note on following All. 20
- i) O and D study.
  - ii) PCU.
  - iii) Net Present Value [NPV].
  - iv) Road development plan 1981-2001.

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