

**Question Bank**  
**HIGHWAY ENGINEERING (Th-4)**  
**FOR DIPLOMA IN CIVIL ENGINEERING**  
**3rd SEMESTER AS PER SCTE &VT SYLLABUS**



**Prepared by – DAMAYANTI PRADHAN**  
**Department of Civil Engineering**  
**Govt. Polytechnic, Mayurbhanj**

## **CHAPTER :- 1 Introduction**

### **2 MARKS**

- 1) Mention two functions of CRRI (Central Road Research Institute).
- 2) State the IRC specification for width of carriage way for various classes of roads.
- 3) What are the functions of Indian road congress?
- 4) What are the IRC classification of roads
- 5) Name important transportation organizations.

### **5 MARKS**

- 1) What are the significant recommendations of Jayakar Committee report? How did this help in road development?
- 2) Discuss the second twenty year road plan and its salient features.
- 3)
- 4) What are the significant recommendations of Jayakar Committee report?

### **10 MARKS**

- 1) Classify roads as per third 20-year road development plan, 1981-2001.

## **Chapter 2 Road Geometrics**

### **2 MARKS**

- 1) Define right of way.
- 2) Define Camber. What are the objectives of providing camber? Specify the recommended ranges of camber for different types of pavement surfaces.
- 3) Explain total reaction time of the driver.
- 4) What is the necessity of highway planning?
- 5) What is super elevation?

### **5 MARKS**

- 1) Define gradients. Describe different types of gradients.

- 2) Draw a general shape of different types of transition curves and explain?
- 3) A vehicle travelling at 60 kmph was stopped within 2.8 seconds after the application of the brakes. Determine the average skid resistance.
- 4) What is overtaking sight distance? Derive an expression for calculating the overtaking sight distance on a highway.
- 5) Calculate the quantity of pointing works involved from

### 10 MARKS

- 1) Design the rate of super elevation for a horizontal highway curve radius 750 m and speed 110 kmph.
- 2) Explain the design of vertical curves.
- 3) With a neat sketch, describe methods of providing super-elevation.
- 4) With a neat sketch, describe methods of providing super-elevation.

## CHAPTER: - 3 Road Materials

### 2 MARKS

- 1) What do you mean soundness test?
- 2) What do you mean Abrasion test?
- 3) What do you mean impact test?
- 4) What do you mean by CBR Test?

### 5 MARKS

- 1) What is flakiness index of road aggregates? What is its significance?
- 2) Enlist the various tests on road aggregates. Distinguish between aggregate impact test and Los Angeles Abrasion test.
- 3) Explain soundness test?
- 4) Explain impact test?
- 5) What is the function of soil as highway Subgrade?

### 10 MARKS

- 1) Explain Abrasion test?
- 2) Explain water absorption test?

- 3) Explain methods of finding CBR valued in the laboratory and at site and their significance
- 4) Explain CBR test..?

## CHAPTER: -4 Road Pavements

### 2 MARKS

- 1) What is D.L.C.?
- 2) Define P.Q.C.
- 3) Compare between bitumen and tar.
- 4) Differentiate between isolated and combined footings.

### 5 MARKS

- 1) Discuss about the different bituminous emulsions and its uses.
- 2) Mention differences between Flexible Pavement and Rigid Pavement.
- 3) How to prepare bituminous concrete?
- 4) State the causes of Flexible pavements with neat sketches
- 5) Explain in detail lime stabilization.

### 10 MARKS

- 1) Describe bituminous macadam.
- 2) Describe water bound macadam.
- 3) 7. Write short notes on:
  - (i) Water Bound Macadam (WBM)
  - (ii) Bituminous Concrete
  - (iii) Bituminous Surface Dressing
  - (iv) Premixed Carpet.
- 4) Write short notes on:
  - (i) Mechanical Stabilization.
  - (ii) Lime Stabilization.
  - (iii) Cement Stabilization.
  - (iv) Fly ash Stabilization.

## CHAPTER: -5 Hill Roads:

### 2 MARKS

- 1) Why retaining walls are provided in hill roads?
- 2) Define retaining wall and breast wall.

### 5 MARKS

- 1) Explain the purposes of providing breast walls and retaining walls on hill roads

### 10 MARKS

- 1) Write about the various problems while planning hill roads.

## CHAPTER: -6 Road Drainage:

### 2 MARKS

- 1) What are the objectives of sub-surface drainage of road aggregates?

### 5 MARKS

- 1) What are the necessity of road drainage work, cross drainage works
- 2) Explain briefly sub-surface drainage system in highway with sketch.

### 10 MARKS

## CHAPTER: -7 Road Maintenance:

### 2 MARKS

- 1) Draw the following (Each five Nos.)
  - (i) Regulatory signs
  - (ii) Warning signs.

### 5 MARKS

- 1) Classify traffic islands with neat sketches.
- 2) Classify and explain traffic signals.

### 10 MARKS

- 1) Explain common types of road failures – their causes and remedies
- 1) What are the factors considered for road side development and state the purposes of planting trees on the road side?
- 2) With neat sketch discuss the regulatory traffic signs?

## CHAPTER: -8 Construction equipment:

### 2 MARKS

- 1) What do you mean by Road Pavers and Bulldozer?

### 5 MARKS

- 1) Write short notes on any two:
  - (i) Tipper
  - (ii) roller dragline
  - (iii) Asphalt mixer
  - (iv). tar boilers
- 2)
- 3) Mention the types of equipment used for excavation and compaction of soil for embankment.
- 4) Write short notes on any two:
  - (i) Dozer
  - (ii) Grader
  - (iii) Scraper
  - (iv) Draglines.

### 10 MARKS

- 1) Explain hot mixing plant?

