

# BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY

## Question Bank (K-Scheme)

Name of subject: Highway Engineering  
Subject code: 313323

Course: CE

Unit Test: I

Semester: III

### Unit 1 (Introduction to Highway Engineering)

#### 2 Marks

1. State any two characteristics of road transport.
2. Classify roads as per Nagpur Plan.
3. Classify roads as per Third Road Development plan.

#### 4 Marks

1. Classify the roads according to Nagpur plan.
2. Classify roads as per Third Road Development plan.
3. State importance of road in India.
4. State the role of transportation in development of nation.
5. State the modes of transportation. Also explain one of them.
6. Differentiate between Roadways and Railways.

### Unit II (Geometric Elements of Highway)

#### 2 Marks

1. Define Kerb & Right of Way.
2. Define Camber & super elevation.
3. Enlist types of Gradients.
4. Define: Road carriageway & Road shoulder.

#### 4 Marks

1. Define design speed. Give four factors affecting design speed.
2. Define gradient. Explain types of gradient.
3. Draw cross section of National highway in embankment.
4. State the methods of construction of Cement concrete road. Explain any one method.
5. Calculate the Stopping Sight Distance for two way traffic in a Single Lane Road. The design speed of the Road is 60 kmph. Assume Reaction time of the driver as 2.5 sec and Co-efficient of friction as 0.6. Brake efficiency is 50%.
6. Define alignment and state the requirement of an ideal road alignment.
7. State the necessity of providing extra widening on horizontal curves.
8. Calculate the safe stopping sight distance for a design speed of 50 Kmph for a two way Traffic in a single lane road.
9. Design the rate of super elevation for a Horizontal Highway curve of radius 500 metres

and speed 100 Kmph. Assume suitable data.

### **Unit III (Construction of Road Pavement)**

#### **2 Marks**

1. Define Flexible pavement & Rigid Pavement.
2. List various types of curve provided for hill road.

#### **4 Marks**

1. State & explain functions of pavement component.
  2. Explain the construction procedure for bituminous road.
  3. Explain softening point test on bitumen.
  4. State different types of tar used in construction of road with its suitability.
  5. Justify the remedial measures for following defects :
  6. (i) Formation of pot holes in case of WBM roads.  
(ii) Formation of ruts in case of earthen roads.  
(iii) Bitumen bleeding in case of bituminous roads.
  7. Explain the procedure for flakiness and elongation test on aggregate.
  8. Describe stepwise construction procedure of cement concrete road by continuous bay Method.
  9. Describe stepwise construction procedure for water bound macadam roads.
  10. Discuss the causes of failure in flexible and rigid pavement.
  11. Explain the types of hill road curve with neat sketch.
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