QUESTION BANK

UNIT-I

Short questions:

1. What is central road fund?
2. Explain Jayakar committee recommendations.
3. Classify the road systems at regional/ national and urban level.
4. What are the factors effecting highway alignment?
5. List the various requirements of Highway Ideal Alignment

Essay questions:

1. Discuss in detail the various factors controlling the highway alignment with sketches.
2. What is the necessity of Realignment?
3. List and explain the various steps Realignment.
4. What are the various recommendations of Jayakar Committee? How were these implemented?
5. What are the various methods of classifying roads? Briefly outline the classification of urban roads.
6. Present on different road developments in India.
7. What are the different road network patterns and explain their benefits?
8. Present on Engineering surveys to be conducted for highway construction.
9. Present the different drawings to be developed for facilitating to construct a highway.

UNIT-II

Short questions:

1. List the various assumptions in the analysis of safe Overtaking Sight Distance.
2. Calculate the extra width required for a two lane highway having a horizontal curve of radius 200m,if the design speed is 80 Kmph.
3. What are the design issues in highway geometrics?
4. Define stopping sight distance
5. Define super elevation give the IRC specifications.

Essay questions:

1. Explain PIEV Theory and the total reaction time of driver .
2. Calculate the length of transition curve using the following data: Design speed =65 Kmph, Radius of circular curve = 220m, pavement width including extra widening =

7.5 m, allowable rate of introduction of super elevation (pavement is rotated about the centerline) is 1 in 150.

3. With the help of a neat sketch, explain the attainment of super elevation in the field.
4. Calculate the length of vertical valley curve required between -1/30 and +1/25 grades for a speed of 80 Kmph to satisfy comfort and headlight sight distance requirements.
5. Develop the equation form for super elevation design.
6. What is the IRC suggested approach for super elevation implementation?
7. Develop the equation form for Extra widening at transition curve.
8. Develop the equation forms for designing the different vertical curves.

UNIT-III

Short questions:

1. Draw a neat sketch of Condition and Collision diagram.
2. Define traffic volume and traffic density and speed.
3. List the factors to be considered in the design of intersection at grade.
4. List the various types of on street and off street parking facilities.
5. What are the different traffic signs and their relevance?
6. Present different types of road markings, their specifications and their relevance.
7. Draw and explain different types of grade separated interchanges

Essay questions:

1. Write a note on various road user characteristics affecting the traffic.
2. Briefly explain the various objectives and methods of O and D studies.
3. Briefly explain the various design factors to be considered in the design of rotary.
4. With neat sketches, explain the Different types of traffic Islands and conflicts at Intersections.
5. List and explain the various advantages and disadvantages of Rotary.
6. List the various advantages of at grade and Grade separated Intersections.
7. Present the different types of islands and their functionality in reducing the conflicts.
8. Present the design procedure of rotary as traffic Control Island.
9. What are the requirements of at grade intersection?
10. Present on different types of intersections

UNIT-IV

Short questions:

1. List the various tests to be conducted to evaluate the strength properties of soils
2. Differentiate between Tack Coat and Prime Coat.
3. How do you frame design controls in geometrics of highway explain from each feature with specification?

4. Draw typical conflict points in an intersection and suggest different types of treatments.
5. Present different types of pavement failures.
6. Draw the cross sectional view of joints and filler in concrete pavement.

Essay questions:

1. List the specifications, materials and construction steps for laying Bituminous concrete.
2. Explain briefly the importance and requirements of Highway Drainage.
3. Discuss the desirable properties of Coarse Aggregates. List the various laboratory test conducted to find these properties.
4. Explain how the soils are classified based on HRB soil classification system.
5. Present the construction procedure of any black top road?
6. Present the test procedures to characterize the highway materials?
7. Present the construction procedure of cement concrete road?

UNIT-V

Short questions:

1. Define flexible pavement?
2. What are the characteristics of subgrade.
3. Define rigid pavements?
4. What are the characteristics of a good pavements.
5. Define Overlay in pavements.
6. Explain briefly desirable properties of sub grade soil.

Essay questions:

1. Explain the following in detail?
    a) anticipated traffic
    b) vehicle damage factor
2. Explain the procedure for the construction of wet Mix macadam roads
3. Explain the importance of joints in the construction of cement concrete pavements
4. Explain stresses in rigid pavements by westergards and IRC methods
5. What is pavement, explaining briefly different types of pavements?
6. Explain the difference between flexible pavements and rigid pavements?
7. Explain the different layers in flexible pavement with neat sketch.