

Code No: 07A60106

**R07****Set No. 2**

**III B.Tech II Semester Examinations, APRIL 2011**  
**TRANSPORTATION ENGINEERING**  
**Civil Engineering**

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
 All Questions carry equal marks

\*\*\*\*\*

1. Explain with sketches the various factors controlling the alignment of roads. [16]
2. What are the various types of at-grade intersections possible? Describe the same with suitable sketches showing their lay out. [16]
3. (a) What is camber & what is its need on pavement. what are factors on which camber is chosen. Give JRC Recommendations.  
 (b) What is stopping sight distance. What is the need to have SSD and factors on which it is based. [8+8]
4. (a) What do you understand by the term visual aid in connection with airport run way? What is the necessity of visual aids?  
 (b) Discuss about correction for runway length. [8+8]
5. Write short notes on the following:
  - (a) Cant Deficiency.
  - (b) Turn out.
  - (c) Crossing. [16]
6. What are the various types of parking facilities designed for traffic needs? Compare kerb parking with off-street parking. [16]
7. (a) Give a brief description of various gauges adopted in our country and bring out the importance of having a uniform gauge throughout.  
 (b) What factors influence the alignment of a railway track? Explain. [8+8]
8. Design the timings of an isolated signal to be installed at a right angled intersection when roads P and Q cross. The data available are:

	Road P	Road Q
Width, metre	14.0	10.5
Peak hour traffic volume, vehicles Per hour per lane	200	120
Approach speed, kmph	50	35

[16]

\*\*\*\*\*

Code No: 07A60106

**R07****Set No. 4**

**III B.Tech II Semester Examinations, APRIL 2011**  
**TRANSPORTATION ENGINEERING**  
**Civil Engineering**

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
 All Questions carry equal marks

\*\*\*\*\*

1. What are the various corrections to be applied to standard runway length to obtain the actual length of a runway? Explain. Discuss about classification of Airport according to FAA and ICAO [16]
2. Indicate how the traffic volume data is collected (mechanical) and presented and how the results are used in traffic engineering. [16]
3. (a) What is over taking sight distance? Discuss about the overtaking zones.  
 (b) What is skid resistance? What are the factors on which it is depending? [8+8]
4. Write short notes on :
  - (a) Spikes.
  - (b) Blocks.
  - (c) Chairs and Keys.
  - (d) fish plates and fish bolts. [16]
5. What are the different types of traffic signal system? Mention the warrants for traffic signal installation? [16]
6. What are the various surveys to be carried out before planning a highway system for a given area ? Explain briefly. [16]
7. (a) Describe the possible layouts for three leg interchanges with the help of neat sketches and indicate the situations where they are suitable.  
 (b) Discuss the advantages and limitation of rotary intersection. [8+8]
8. (a) Design a turnout with 1 in 12 crossing from the following data: Gauge= 1.676m Heel divergence(d)=13.3cm Straight arm between T.N.C. and Tangent point (T.P)x=1.346m Angle of crossing ( $\alpha$ )=4<sup>o</sup>45'49" Angle of switch ( $\beta$ )=1<sup>o</sup>8'00"  
 (b) Through the neat sketches, show the methods of laying sleepers at points and crossings. [8+8]

\*\*\*\*\*

Code No: 07A60106

**R07****Set No. 1**

**III B.Tech II Semester Examinations, APRIL 2011**  
**TRANSPORTATION ENGINEERING**  
**Civil Engineering**

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
 All Questions carry equal marks

\*\*\*\*\*

1. What are Road Marking? What is the need for road markings. What are the types of road marking. Discuss. [16]
2. With the help of a neat diagram indicating the various geometric elements of a traffic rotary, explain about the design elements of a rotary intersection. [16]
3. (a) What is Cant Deficiency? Give the permissible values of cant deficiency for different gauges in India.  
 (b) What is the permissible speed on B.G. track with a  $4^\circ$  curve? If the speed is to be restricted to 68 Kmph, what super elevation should be given after allowing the permissible cant deficiency. [8+8]
4. State factors on which the overtaking sight distance depends. Explain briefly under what circumstances the need to put up sign boards 'over taking prohibited' is required. [16]
5. Explain various measures that may be taken to prevent accidents. write about condition and collision diagram? [16]
6. (a) Write about the importance of the following in a railway track:
  - i. Size of ballast.
  - ii. Quantity of ballast.
  - iii. Depth of ballast.
  - iv. Screening of ballast
 (b) Discuss about rail fastening used in Indian railyways system. [4+12]
7. (a) What is the importance of Nagpur road plan in highway planning of our country. Explain the plan formulae and the salient features of the plan.  
 (b) Discuss the second twenty year road plan of 1961-81 and its salient features. [16]
8. The length of a runway under standard conditions is 1800m. The airport is to be provided at an elevation of 110m above the mean sea-level. The airport reference temperature is  $22^\circ\text{C}$ . The construction plan includes the following data.

Code No: 07A60106

**R07****Set No. 1**

<u>End to End of Runway (w)</u>			<u>Grade (Percent)</u>
0	to	300	+1.00
300	to	900	-0.25
900	to	1500	+0.50
1500	to	1800	+1.00
1800	to	2100	-0.30

Determine the actual length of runway to be provided. Apply corrections for elevation and temperature as per ICAO and for gradients as per FAA specifications.

\*\*\*\*\*

FIRSTRANKER

Code No: 07A60106

**R07****Set No. 3**

**III B.Tech II Semester Examinations, APRIL 2011**  
**TRANSPORTATION ENGINEERING**  
**Civil Engineering**

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
 All Questions carry equal marks

\*\*\*\*\*

1. Explain the important characteristics of an air craft and their influence on air port planning. [16]
2. (a) Derive an expression for superelevation when a train is negotiating a curve.  
 (b) What should be the equilibrium cant on a M.G. track curve for an average speed of 60 kmph. Also find out the permissible speed allowing the maximum cant deficiency. [8+8]
3. Explain camber. What are the objects of camber? Discuss the factors on which the amount of camber to be provided depends. Specify the recommended ranges of camber for different types of pavement surfaces. [16]
4. (a) Discuss the factors on which sleeper density depends and how the sleeper density is expressed for fish jointed track and for welded railway track.  
 (b) An M.G. track has a sleeper density on M+5. If the track is laid with rails of 13 meter length, find out the number of sleepers under one rail length. [8+8]
5. With the help of neat sketches, indicate the traffic movements of all directions in the following types of grade separated interchanges:
  - (a) Diamond Interchange.
  - (b) Trumpet Interchange.
  - (c) Half Cloverleaf.
  - (d) Full cloverleaf. [16]
6. What are the applications of location file, spot maps, collision diagrams and condition diagrams? Draw neat sketches and explain? [16]
7. Compare the Nagpur road plan and the second twenty year road plan; discuss the merits of each. [16]
8. What is the design procedure for designing a pedestrian and traffic signals by IRC or webster method? [16]

\*\*\*\*\*