Code No: 07A60106 **R07** **Set No. 2**

III B.Tech II Semester Examinations,December 2010
TRANSPORTATION ENGINEERING
Civil Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. What are the various types of at-grade intersections possible? Describe the same with suitable sketches showing their lay out. [16]
2. Indicate how the traffic volume data is collected (mechanical) and presented and how the results are used in traffic engineering. [16]
3. 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]
4. What are the advantages and disadvantages of different traffic signal system?
5. (a) What are the various objectives of preliminary survey for highway alignment? Enumerate the details to be collected and the various steps in the conventional method.
   (b) Discuss about various requirements for a highway alignment. [8+8]
6. There is an unsymmetrical split of $4^0$and 7^0 curves from main line and branch line respectively in a B.G.Yard layout. If the speed restriction on main line is 58 Kmph, what would be the speed restriction on branch line? Permissible cant deficiency is 7.62cm. What is negative super elevation discuss. [16]
7. (a) Explain how the vertical curves on a hump formed due to the presence of a culvert slightly above the profile may be designed.
   (b) Explain the factors based on which the length of valley curve is widening. [8+8]
8. (a) What is Composite Sleeper Index? What are the minimum values suggested for CSI for different types of sleepers in India? Also explain the important points to be considered for good performance of timber sleepers.
   (b) Discuss about the various rail fastening used in railways. [8+8]

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Code No: 07A60106 **R07** **Set No. 4**

III B.Tech II Semester Examinations,December 2010
TRANSPORTATION ENGINEERING
Civil Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Giving a neat sketch of a cloverleaf intersection, indicate the various traffic movements in various directions. Briefly explain why it is considered as the highest type of intersection. [16]
2. Describe the types of crossings with the help of neat sketches. [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. What are the objects of reconnaissance in engineering surveys? Discuss the scope of aerial survey for the purpose. Also disucss about other survey needed for locating a new highway. [16]
5. What is a wind rose diagram? Explain how a wind rose diagram is to be prepared assuming some hypothetical wind data. [16]
6. What are the general causes identified in case of road accidents ? What measures are to be taken to reduce accident rate and improve road-safety ? Explain. [16]
7. (a) How does the design of track components, particularly of the sleeper affect the creep in the track. Discuss the theories related to creep
   (b) Explain the remedial measures that can be taken to prevent creep. [12+4]
8. At a right angled intersection of two roads, Road 1 has four lanes with a total width of 12.0m and Road 2 has two lanes with a total width of 6.6m. The volume of traffic approaching the intersection during design hour are 950 and 780 PCU/hour on the two approaches of Road 1 and 360 and 190 PCU/hour on the two approaches of Road 2. Design the signal timings as per IRC guidelines? [16]

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Code No: 07A60106 **R07** **Set No. 1**

III B.Tech II Semester Examinations,December 2010
TRANSPORTATION ENGINEERING
Civil Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What is camber & what is its need on pavement. what are factors on which camber is choosen. 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]
2. (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 4^0 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]
3. What is Road Marking? What is the need for road markings? What are the types of road marking? Discuss. [16]
4. Write short notes on:
   (a) Thirteenth highest hourly traffic volume
   (b) Percentile speed
   (c) Condition and collision diagram
   (d) Angled parking. [4×4]
5. Define channelization and explain the objectives of channelization at intersections. Show the typical channelization possible for a T intersection, Y intersection and four-legged intersection with the help of at least one sketch for each type. [16]
6. Write short notes on the following:
   (a) Airport Beacon.
   (b) Minimum Clearances between runways.
   (c) Effect of Wind Components on runway orientation.
   (d) Basic runnway length. [4+4+4+4]
7. Write short notes on :
   (a) Central road fund
   (b) Nagpur road plan
   (c) Indian Roads Congress

(d) Jayakar Committee. [4+4+4+4]

8. (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]

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Code No: 07A60106 **R07** **Set No. 3**

III B.Tech II Semester Examinations,December 2010
TRANSPORTATION ENGINEERING
Civil Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. What factors are to be given consideration in the selection of a site for an Airport? Explain. [16]
2. Explain total reaction time of driver and the factors on which it depends also Explain "PIE" theory. What is lag and brake distance. [16]
3. 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]
4. Write short notes on:
   (a) Corrugated rails.
   (b) Hogged rails.
   (c) Kinks in rails.
   (d) Buckling of rails. [4+4+4+4]
5. Differentiate between the following:
   (a) Facing points and trailing points.
   (b) Angle of crossing and number of crossings.
   (c) Straight cut switch and undercut switch.
   (d) Switch lead (S.L) and curve lead (C.L). [4+4+4+4]
6. What are the various surveys to be carried out before planning a highway system for a given area ? Explain briefly. [16]
7. An isolated signal with pedestrians indication is to be installed on a right angled intersection with road A 16m wide and road b 12m wide. The heaviest volume per hour for each lane of road A and road B are 295 and 125, respectively. The approach speeds are 50 and 40 Kmph, for A and road B respectively. Design the timings of traffic and pedestrian signals. [16]
8. Discuss the various traffic studies and their importance. [16]

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