B.E. Sixth Semester (Civil Engineering) (CGS)

10205 : Transportation Engineering - II : 6 CE 04

P. Pages : 2

Time : Three Hours

AU - 2736

Max. Marks : 80

Notes : 1. All question carry marks as indicated.
2. Answer **three** question from Section A and **three** question from Section B.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) What is mean by Traction? Compare the different types of traction. **5**

b) Draw a typical cross section of single line B.G. track on curve in embankment showing various components. **4**

c) Describe the various phases of survey to be carried out for new railway project. **4**

OR

2. a) A 2-8-2 locomotive runs on straight level B.G. track at a speed of 80kmph. The axle load of driving wheel of engine is 24 Tonnes. **8**

i) Find the maximum permissible train load that can be pulled by locomotive.
ii) Calculate the Reduction in speed, if train ascends a gradient of 1 in 200.
iii) If train ascends a gradient of 1 in 200 with 2° curve, then what would be the Reduced speed of train.

b) Describe the classification of Indian Railway lines based on speed criteria. Give example of each category. **5**

3. a) What is meant by wear of rails? How is it classified? State the causes and suggest the remedial measures to reduce the wear of rail. **6**

b) Explain: **4**

i) Sleeper Density ii) Negative Cant.

c) Explain the necessity of grade compensation at curve. The ruling gradient has been fixed as 1 in 200 on a section of B. G. track, what should be the compensated gradient, when a 4° horizontal curve is also to be introduced on this ruling gradient. **4**

OR

4. a) What is coning of wheel? Explain the behaviour of coned wheel on curved path with neat sketch. **4**

b) Describe the different types of Rail Joints used by Indian Railway with neat sketch. **5**

c) A 6° curve branches off from a 3° main curve in an opposite direction in the layout of a B.G. Yard. If the speed on branch line is limited to 35.5kmph. Determine the speed restriction on the main line. Given cant deficiency = 7.62cm. **5**

5. a) Draw a typical sketch of Right Hand turnout and briefly explain all the components. **6**

b) Enlist the different types of station and yards. Explain the Terminal station with neat sketch. **7**

OR

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6. a) What are the objectives of signaling? Explain the various types of signals. 7

b) Explain: 6
i) Scissor crossover ii) Turntable
iii) Diamond Crossing

SECTION - B

7. a) Explain the various surveys to be conducted and data to be collected for airport site selection. 7

b) What is Wind Rose diagram? What is it's utility? What are it's type? Explain any one type. 7

OR

8. a) What are the different aircraft characteristics? Explain minimum turning radius of aircraft with neat sketch. 7

b) The length of Runway under standard condition is 1500m. The airport site has an elevation of 900m and the reference temperature as 20°C if the proposed runway permits an effective gradient of 0.2%. Determine the corrected Runway length. 7

9. a) Explain the Unit Terminal concept in Planning of an airport. 7

b) Explain the different types of Runway Lighting. 6

OR

10. a) What are the different system of Aircraft parking? Explain the suitability of each system with neat sketch. 7

b) Name the various enroute aids for controlling the air traffic on the air routes. Explain any one in detail. 6

11. a) State the necessity of Tunnel Ventilation. Explain the methods of ventilation in tunneling. 7

b) Describe the method of transferring the alignment from the ground through the shaft in tunnel with neat sketch. 6

OR

12. a) Name the various methods used in Hard Rock tunneling. Explain Drift method with neat sketch. 6

b) Describe the different types and shapes of tunnel with neat sketch. Give suitability of each shape of tunnel. 7

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