

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00165

December, 2014

BICE-019 : TRANSPORTATION ENGINEERING – I

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.

1. Describe the functions of rails in a railway track. Discuss the different types of rail sections with the help of neat sketches. 10

2. Discuss the different types of rail joints with the help of neat sketches. 10

3. (a) Using a sleeper density of $n + 5$, find out the number of sleepers required for constructing a railway track 640 m long (B.G.). 4
(b) What are the different types of fish plates in use ? Illustrate with sketches. 6

4. A 5° curve diverges from a 3° main curve in reverse direction in the layout of a B.G. yard. If the speed on the branch line is restricted to 35 kmph, determine the restricted speed on the main line. 10
5. If the wheel base of a vehicle moving on a B.G. track is 6 m, the diameter of wheel is 1.5 m and the depth of flanges below the top of rail is 3.17 cm, determine the extra width required to be provided on gauge, if the radius of the curve is 160 m. 10
6. Discuss any two types of crossings with the help of neat sketches. 10
7. What are the various systems of controlling the movement of trains ? Explain the working of one system which has been widely used in Indian Railways. 10
8. Write short notes on the following : 2×5=10
- (a) Container transport service
 - (b) MAGLEV and TACV vehicles

9. (a) Define the following terms in airport engineering : $4 \times 1 \frac{1}{2} = 6$
- (i) Runway
 - (ii) Taxiway
 - (iii) Apron
 - (iv) Hangar
- (b) What are the considerations influencing the selection of the site for an airport ? 4
10. (a) What are the two types of harbours ? Give sketches to illustrate. 4
- (b) What are the three types of breakwater ? Give suitable sketches. 6
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