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BICE-019

B.Tech. CIVIL ENGINEERING (BTCLEVI)

00696

Term-End Examination

June, 2015

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. What do you understand by a permanent way ? Write the requirements of an ideal permanent way. Draw a typical cross-section of a permanent way. *10*

2. Illustrate the various types of rail failures with sketches. *10*

3. (a) Find out the expression for sleeper density for a B.G. track, if 19 sleepers are used under a rail length. *4*

   (b) Explain the functions of fish-plates and fish-bolts. *6*

4. What is the ballast in permanent way ? Mention the functions of ballast and state the requirements of a good ballast material. *10*

5. If an 8° curve track diverges from a main curve of 5° in an opposite direction in the layout of a B.G. yard, calculate the superelevation and the speed on the branch line, if the maximum speed permitted on the main line is 45 kmph. *10*

6. Calculate the shift and offsets at every 1·5 m of a transition curve. The transition curve of 90 m length is to be used to join the ends of a 4° circular curve within the straight and circular curve. *10*

7. Draw a neat diagram of simple right or left hand turnout and show its various component parts. *10*

8. What is meant by a level crossing ? Explain with a neat sketch of a right-angle level crossing, the conditions to be satisfied by a 'A' class level crossing. *10*

9. Why is the study of modern trends essential ? Describe some of the latest researches in Railway Engineering around the world. *10*

10. (a) What are the main components of an airport ? Give a sketch of an airport layout. *6*

(b) Give the sketch of a floating dry dock and label its various components. *4*
