

**B.Tech. CIVIL ENGINEERING (BTCLEVI)**

**Term-End Examination**

**June, 2019**

00655

**BICE-019 : TRANSPORTATION ENGINEERING – I**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt any **seven** questions. All questions carry equal marks.

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1. List and compare the different types of sleepers. 10
2. What is the necessity of ballast ? Briefly describe the various materials that are commonly used as ballast. 10
3. How is the train speed controlled on different curves ? Describe in detail. 10
4. (a) Describe hauling capacity and tractive effort. 5  
(b) Describe the modern techniques of safety in railways. 5
5. (a) Describe the different types of railway yards. 6  
(b) What is the purpose of signalling ? 4

6. Discuss the classification of airports in India. 10
7. (a) Explain the procedure used to draw a wind-rose diagram. 6  
(b) Draw a labelled layout of an airport. 4
8. Explain the different types of breakwaters with the help of neat sketches. 10
9. Discuss the different design considerations for the construction of docks. 10
10. Write short notes on the following :  $4 \times 2 \frac{1}{2} = 10$
- (a) Guard Rails
  - (b) Cant Deficiency
  - (c) MAGLEV
  - (d) Tractive Resistance
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