BE – 042

Seventh Semester B.E. (Civil) Degree Examination, December 2016
(2K11 Scheme)
CE 704 : TRANSPORTATION ENGG. – III

Time : 3 Hours Max. Marks : 100

Instructions : *1) Answer **any three** questions from Part **A, one each** from Part **B** and **C.***
*2) Assume **any** missing data suitably.*

PART – A

1. a) Draw a typical railway station on a double line BG Track with electric traction, showing the important components and explain the functions of each. **12**

   b) Mention the object of providing ballast in railway track. **8**

2. a) Discuss the necessity and effects of conning of wheels and tilting of rails with sketches. **10**

   b) A Locomotive has four pairs of driving wheels, the load on each axel being 30 T. What is the total weight of the train that can be havled at an uniform speed of 120 kmph while moving on a straight B.G. Track. What is the reduction in speed, if the same train moves on an ascending gradient of 1 in 40 ? **10**

3. a) Explain briefly the necessity of Geometric design of a railway track. **8**

   b) Discuss in brief, the ideal requirements and functions of a good sleeper and also the advantages and disadvantages of PSC sleeper. **12**

4. a) Explain with a neat sketch, negative superelevation. **8**

   b) A 5° curve branches off from a 3° curve in an opposite direction in the layout of a B.G. Yard. If the speed on main line is limited to 70 kmph. Find the speed restriction on branch line. Assume cant deficiency as 7.4 cm. **12**

5. a) Define turnout and mention the various ports with a sketch. **8**

   b) Calculate all the elements required to set out a 1 in 12 turnout taking off from straight B.G. Track with its curve starting from the toe of the switch i.e. tangential to the gauge free of the outer main rail and posses through TNC, given that the heel divergence is 11.4 cm. **12**

PART – B

6. a) Explain briefly the classification of harbours with suitable examples. **10**

   b) Explain briefly the various factors to be considered while selecting a site for the construction of a harbour. **10**

7. a) Explain with suitable sketchs, the different types of break waters that are commonly constructed in harbour. **8**

   b) Given a fetch of 18 Nautical kms a wind speed of 25 m/se and mean water depth of 8 m determine the wave height and wave length. **8**

   c) Explain briefly dry dock. **4**

PART – C

8. a) Explain the circumstances under which a tunnel is preferred to open cut. **10**

   b) What is ventilation in Tunnels ? Explain any one method with a sketch. **10**

9. a) Explain the “Needle beam” method of tunneling in soft soils. **10**

   b) Explain the advantages of tunnels. Mention the different shapes of tunnels adopted for roads and railways. **10**