July-22-00347

B. Tech. EXAMINATION, 2022

Semester VI (CBCS)

TRANSPORTATION ENGINEERING-II

CE-602

Time : 3 Hours   *Maximum Marks : 60*

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Sections A, B, C and D. Q. No. 9 is compulsory.

Section A

1. What is the purpose of coning of wheels ? How is creep generated in a rail ? Explain in detail the responsible theories and remedies for creep.   **10**

2. Explain the various kinds of resistances against tractive forces for the movement of a train. **10**

Section B

3. (a) Calculate all the necessary elements required to set out a 1 in 8 turnout, taking off from a straight B.G. track with its curve starting from the toe of a switch, i.e., tangential to the gauge face of the outer main rail and passes through theoretical nose of crossing. Given heel divergence = 12 cm. **5**

(b) A BG branch line track takes off as a contrary flexure through a 1 in 10 turnout from a main line track of a 4° curvature. Due to the turnout, the maximum permissible speed on the branch line is 36 km/hr. Calculate the negative super elevation to be provided on the branch line track and the maximum permissible speed on the main line track (when it takes off from a straight track). **5**

4. Explain with a neat diagram various components of an underground railway in an urban area. **10**

Section C

5. Describe in detail about the technical planning process of an airport. **10**

6. (a) Design an exit taxiway joining a runway and a parallel main taxiway. The total angle of turn is 34 degrees and the turn off speed is 78 kmph. Draw a neat sketch and show therein all the design elements.

(b) Give a layout of an airport describing major airport areas and their probable location. **5+5**

Section D

7. Explain in detail about how a Wind rose diagram II assists in finding out the optimal runway direction at a given location. Also explain in detail, how the different factors affect the basic runway length ? **10**

8. Explain the concept of ITS. Write down the importance if ITS in traffic engineering. **10**

Compulsory Question

9. Write briefly about the following :
   (i) Level crossing
   (ii) Station and yards
   (iii) IFR and VFR rules
   (iv) Railway zones in India
   (v) Grade compensation along a curve. **5×4=20**