53 (CE 603) TREN

2019

TRANSPORTATION ENGINEERING–II

Paper : CE 603

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***any five*** *questions.*

1. *(a)* What do you understand by a permanent way? Mention the requirements of an ideal permanent way. 10

   (b) What is Creep of rail? Explain briefly the causes, effects and preventions of creep. 10

2. *(a)* What are the requirements of a good ballast? Mention the different types of ballasts used in permanent way. 10

(b) A 5 degree curve diverges from a 3 degree main curve in reverse direction in the layout of a B.G. yard. If the speed on branch line is restricted to 35 *kmph*, determine the restricted speed on the main line. 10

3. (a) What are the functions of a railway station? Discuss the various requirements of a railway station. 10

(b) Explain briefly the different types of station yards. With a neat sketch, explain the functioning of a Marshalling yard. 10

4. (a) Explain the necessity of maintaining railway track. List the various items of maintenance. 10

(b) Why is it necessary to provide adequate drainage facilities for a railway track? Mention the requirements of a good drainage system. 10

5. (a) List the various elements of an airport and explain them with a neat sketch. 10

(b) Explain the various factors considered in selection of an airport site. 10

6. (a) Explain the procedure for orienting runway using Wind rose diagram of type-I. 10

(b) Determine the turning radius of taxiway for an aircraft of the following characteristics. The coefficient of friction is 0·13 and taxiway width is 22·5*m*.

(a) wheel base = 15·85*m*

(b) wheel tread = 6·05*m*

(c) Turning speed = 40*kmph*. 10

7. (a) Explain various types of airport markings. 10

(b) An airport is planned at an elevation of 380*m* above MSL. The monthly mean of maximum and average daily temperature for the hottest month at the site are 40 degree and 28 degree centigrade respectively. The effective gradient is 0·18%. Determine the length of the runway required at the proposed site if the basic runway length is 1900*m*. 10