(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 100603   Roll No. ☐☐☐☐☐☐☐☐☐☐☐

B.Tech.
(SEM. VI) THEORY EXAMINATION 2013-14
TRANSPORTATION ENGINEERING–II

Time : 2 Hours   *Total Marks : 50*

Note :   (i)   Attempt all the questions.

         (ii)   Marks are indicated against each question.

        (iii)   Assume any data suitably, if required.

1. Attempt any **four** parts of the following :   (3×4=12)

    (a)   Draw a typical cross section of a permanent way (BG) on embankment and show the various components.

    (b)   What is sleeper density ? Using a sleeper density of n+5, find out the number of sleepers required for constructing a railway track (BG) 640m long.

    (c)   How the sleepers are classified ? Give the advantages and disadvantages of wooden sleepers.

    (d)   Mention the relative merits and demerits of Flat footed rails and Bull headed rails

    (e)   What Ballast material you would suggest for high speed tracks and why ?

    (f)   Discuss the purpose of spikes. Explain various types of spikes with neat sketches and give the requirement of good spike.

2. Attempt any **two** parts of the following : (6×2=12)

   (a) On a BG3° curve the equilibrium cant is provided for a speed of 70 kmph. Calculate the value of equilibrium cant and allowable cant deficiency. What would be the maximum permissible speed on the track ?

   (b) Discuss all types of gradients giving their permissible values adopted on Indian Railways

   (c) Calculate all the elements required to set out a 1 in 12 turnout taking off from a straight BG track with its curve starting from the toe of the switch i.e.tangential to the gauge face of the outer main rail and passes through TNC, given the heel divergence as 11.4 cm.

3. Attempt any **two** parts of the following : (6×2=12)

   (a) What are the different system of controlling the movement of trains in India ? Give the advantages of CTC system.

   (b) How the signals are classified ? Explain the different types of signals used in station yards.

   (c) What are the different types of Marshalling yards ? Give brief note on each one.

4. Attempt any **two** parts of the following : (7×2=14)

   (a) The runaway length required for landing at sea level in standard atmospheric condition is 3000 m. Runaway length required for takeoff at a level site at sea level in standard atmospheric conditions is 2500 m. Aerodrome reference temperature is 25°C and that of the standard atmosphere at aerodrome elevation of 150 m is 14.025°C. If the effective runaway gradient is 0.5%, determine the runaway length to be provided.

   (b) Write a detailed short note on Airport Marking.

   (c) What is a Harbour and a port ? Briefly explain Harbour site investigation and site analysis.