Total No. of printed pages = 3

CE 181601

Roll No. of candidate

27/7/22

2022

B.Tech. 6th Semester End-Term Examination

TRANSPORTATION ENGINEERING — II

(New Regulation & New Syllabus)

Full Marks – 70   Time – Three hours

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

Answer question No. 1 and any *four* from the rest.

1. Choose the correct answer from the choices given :   (10 × 1 = 10)

    (i)   The first railway line in India was opened for traffic between:

        (a)   Madras and Bombay

        (b)   Agra and Bombay

        (c)   Bombay and Thane

        (d)   Khandwa and Indore

    (ii) For a BG route with M+7 sleeper density, the number of sleepers per rail length is:

        (a)   18

        (b)   19

        (c)   20

        (d)   21

    (iii) The recommended width of ballast for BG track on Indian Railways is:

        (a)   3.53 m

        (b)   3.35 m

        (c)   2.35 m

        (d)   2.53 m

[Turn over

(iv) The main function of a fish-plate is:

    (a) To allow rail to expand and contract freely

    (b) To join rails with the sleeper

    (c) To join the two rails together

    (d) None of the above

(v) A falling gradient followed by a rising gradient is known as:

    (a) Ruling gradient

    (b) Momentum gradient

    (c) Pusher gradient

    (d) Angular gradient

(vi) The maximum allowable superelevation on BG in India is:

    (a) 6mm

    (b) 102mm

    (c) 124mm

    (d) 165mm

(vii) Drift method of tunnelling is used to construct tunnels in:

    (a) Soft grounds

    (b) Rock

    (c) Concrete bed

    (d) None of these

(viii) Which one of the following is considered to be an advantage of the heading and benching method of tunnel construction?

    (a) It is suitable for construction in unstable rocks

    (b) In this method, it is easy to install timber support

    (c) Tunneling can be continuous and the work can be expedited

    (d) In case of excessive water, it is easy to take correct steps

(ix) At a certain station, the mean of the average temperature is 25°C and mean of the maximum daily temperature is 40°C. What is the airport reference temperature?

    (a) 29°C

    (b) 30°C

    (c) 31°C

    (d) 32°C

(x) What shall be the radius of an exit taxiway with design exit speed of 90 kmph and coefficient of friction 0.13?

    (a)   550m

    (b)   500m

    (c)   475m

    (d)   449m

2. (a) Draw a typical cross-section of a permanent way. Discuss in brief the basic functions of various components of a railway track.   (10)

    (b) What are the different data required before selecting a site for an airport?   (5)

3. (a) Write different types of gauges with dimensions present in India. Justify the adoption of gauges with its suitability under different conditions?   (10)

    (b) Write a note on the selection of route for a tunnel.   (5)

4. (a) What is meant by Rail wear? How do you classify the rail wear? Explain with diagrams. Write the allowable limits of rail wear.   (10)

    (b) What is Zoning Laws in Airport Engineering? Discuss it briefly.   (5)

5. (a) Explain the behaviour on coned wheels of trains on straight and curved railway tracks.   (10)

    (b) What is the necessity of ventilation in tunnels? How is it achieved?   (5)

6. (a) What do you mean by hauling capacity of a locomotive? Discuss various types of Tractive Resistances encountered by a train on railway tracks.   (10)

    (b) Explain various factors on which selection of an airport depends.   (5)

7. (a) What is the necessity of points and crossings on railways? Draw a double line sketch of a right hand turnout and name its different parts.   (10)

    (b) Discuss in detail different methods of construction of tunnel in soft soil.   (5)

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