

S.No. : 177

BCE 3601

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

PAPER ID : 33123

Roll
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B. Tech. Examination 2021-22

(Even Semester)

TRANSPORTATION ENGINEERING-II

Time : Three Hours]

[Maximum Marks : 60

Note :- Attempt all questions.

SECTION - A

1. Attempt all parts of the following : 8 × 1 = 8
- What do you mean by railway signal?
 - What do you understand by grade compensation ?
 - Define the term cant deficiency.
 - Enumerate any four factors which affect the size of an airport.
 - What are the various types of rail gauges?
 - Define interlocking.

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- (g) Explain the concept behind coning of wheels.
- (h) What do you understand by track resistance and tractive power?

SECTION – B

2. Attempt any two parts of the following : $6 \times 2 = 12$

- (a) Draw a typical cross-section of a permanent way (BG) on embankment to show the various components.
- (b) Define the term signal and discuss its objectives. Discuss the various types of signals.
- (c) Calculate all the elements required to set out 1 in 12 turnout taking off from straight BG track with its curve hating frame the toe of the switch passes through TC. Give the heel divergence 11.4 cm.
- (d) What are the different types of station yards? Explain the working of anyone with neat sketch.

SECTION – C

Note:- Attempt all questions. Attempt any two parts of the following. $8 \times 5 = 40$

3. (a) Illustrate the various types of rail failure with sketches.
- (b) What is harbour? Briefly explain the various types of harbours.
- (c) Derive the relation of super elevation with gauge, speed and radius of the curve.
4. (a) What is semaphore signal? Discuss its working principle with neat sketch.
- (b) What is wind rose diagram? Explain the procedure of determining the runway orientation.
- (c) Explain the method of interlocking.
5. (a) Draw a neat sketch showing a right hand turnout and name its component.
- (b) What are the systems for controlling the train movement? Give the advantages of CYC system.
- (c) Calculate the super elvation and the maximum permissible speed for a 20 BG transitioned. curve on a high speed route with a maximum santioned speed of 110 kmph. The speed for calculating the equilibrium superelevation is 80 kmph and booked speed of goods train is 50

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kmph.

6. (a) Enumerate the parameters which affect the geometric design of railway track.
- (b) Define sleepers. Explain the various types of sleepers.
- (c) What is ballast materials? Explain the specification ballast used on the railway track.
