

S.No. : 15

BCE 2601

No. of Printed Pages : 05

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

PAPER ID : 23156

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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

- (a) Name the organization which is the research and development wing of Indian Railways.
- (b) The railways has a degree of freedom for its movement.
- (c) There are types of rail sections.

[P. T. O.

- (d) The mountain alignment can be classified into types.
- (e) is a type of utility based harbour.
- (f) The alignment of break water should be
- (g) The FAA classification of the airport is based on
- (h) The wind intensity during a calm period in runways should be

SECTION – B

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

- (a) The length of runway under standard conditions is 1730 m. The airport site has an elevation of 290 m. Its reference temperature is 31.60°C , if the runway is to be constructed with an effective gradient of 0.15 percent, determine the corrected runway length.
- (b) Determine the number of sleepers required for the construction of 2000 m of BG track, with a sleeper density of $N+7$.

(c) Explain the following terms :

(i) Track modulus

(ii) Canning of wheels

Draw neat sketches, wherever necessary.

(d) What essential purposes are served by signalling and interlocking? What do you understand by route relay interlocking?

SECTION – C

Note :- Attempt all questions from this section.

10×4=40

3. Attempt any two parts of the following :

(a) What are the various services that are required for the maintenance of shipping terminals?

(b) What is dredging? Classify the different types of dredging works.

(c) Name the different modes of transportation. Elaborate the advantages and disadvantages of :

(i) Roads

(ii) Rail transportation

[P. T. O.]

4. Attempt any two parts of the following :

- (a) A curve of 500 m radius on a BG section has a limited transition of 50 m. Calculate the maximum permissible speed and super elevation for the same. The maximum sectional speed is 90 km ph.
- (b) Differentiate between mechanical and electrical signalling systems.
- (c) What is permanent way? Explain function of various components briefly.

5. Attempt any two parts of the following :

- (a) Explain the concept of creep using percussion theory. How do you rectify creep?
- (b) What are the factors to be considered for the selection of harbors an a sandy costs and lower reach of a river.
- (c) Discuss briefly about various types of transition curves used in railways.

6. Attempt any two parts of the following :
- (a) What is the role of ballast in railway track? What are the requirement of ballast?
 - (b) Define 'cant deficiency'. What are the permitted cant deficiency values for different gauges?
 - (c) What is a wind rose diagram? What are its types? Explain one.

