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B. TECH.
(SEM VIII) THEORY EXAMINATION 2018-19
TRANSPORTATION ENGINEERING - II

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If you require any missing data, choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. How many gauges exist in Indian Railways? Give their widths and route kilometers.
b. What ballast material would you suggest for high-speed tracks and why?
c. What is meant by 'track modulus'? Indicate its usual range of values for a broad gauge track.
d. How the railway stations are classified?
e. What are the requirements of a good ballast?
f. Define the term ATS.
g. Using a sleeper density of n+5, find out the number of sleepers required for constructing a railway track (BG) 640m long.
h. What are the components of a permanent way?
i. Define Littoral drift.
j. Differentiate between port and harbor.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. What is signaling? What are the objectives of signaling? List the types of signals.
b. Write a note on i. Marshalling yards and ii. Locomotive yards
c. Determine the equilibrium cant on a 2° curve on a broad gauge, if 16 trains, 10 trains, 8 trains, 4 trains and 2 trains are running at a speed of 50Kmph, 60Kmph, 70Kmph, 80Kmph and 100Kmph respectively. Also, determine the deviation from maximum speed.
d. Explain various functions of interlocking.
e. What are the factors to be considered for the selection of harbors on a sandy coast and lower reach of a river?

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) With neat sketch, explain what is coning of wheels and the advantages of coning of wheels.
(b) Calculate the super elevation, maximum permissible speed, and transition length for a 3° curve on a high – speed BG section with a maximum sanctioned speed of 110 Km/h. Assume the equilibrium speed to be 80 Km/h and the booked speed of the goods train to be 50 Km/h.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain briefly the various factors considered in the selection of site for airport.

(b) An airport is planned at an elevation of 380m above MSL. The monthly mean of maximum and average daily temperatures for the hottest month at the site are 40°C and 28°C respectively. The effective gradient is 0.18 percent. Determine the length of runway required at the proposed site if the basic runway length is 1900m.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is dry dock? Explain the construction and uses of dry dock

(b) What is the principle of stop signal? Explain its components with the help of a neat sketch.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the role of rail transportation in the development of a country

(b) In a layout of a B.G. yard, an 8° curve diverges from a 5° main curve. If the maximum permissible speed on the main curve is 65 Kmph, determine the restricted speed on diverging curve.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is a transition curve? What are the different types and what are the requirements for an ideal transition curve?

(b) Explain briefly the functions of the following in a railway track.
i. Hook bolt
ii. Fish Plate
iii. Tie bar
iv. Cotters
v. Screw spike