

Code No: 117JF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech. IV Year I Semester Examinations, November/December - 2016

TRANSPORTATION ENGINEERING - II

(Civil Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

- Part A is compulsory which carries 25 marks. Answer all questions in Part A.  
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

## PART- A

(25 Marks)

1. a) What is sleeper density? [2]
- b) Define "Gauge". What are the popularly used gauges in Indian railways? [3]
- c) What is Negative Super elevation? [2]
- d) What is Degree of a curve? What is the relation between Degree of Curve and Radius of Curve? [3]
- e) What is Hangar? [2]
- f) Give classification of Airports as per ICAO. [3]
- g) What is the difference between a Harbour and a Port? [2]
- h) Differentiate between wharves and jetties. [3]
- i) Define ITS. [2]
- j) Give a brief description of benefits of ITS. [3]

## PART-B

(50 Marks)

2. Giving a neat diagram of a Permanent way on an embankment, indicate various components. Briefly describe the functions of each component. [10]

OR

3. What are the functions of sleepers in a railway track? What are the requirements of good sleepers? [10]
4. If a  $6^\circ$  curve diverges from a main curve of  $3^\circ$  in opposite direction in a BG track, compute the super elevation and the permissible speed on branch line, if the maximum speed permitted on main line is 50 kmph. Cant deficiency permitted is 7.6 cm. [10]
5. What are the different gradients used in railway alignment? How do you compute grade compensation? [10]
6. Discuss about the various geometric design elements of a runway and the related design standards. [10]

OR

7. The length of runway at sea level under standard conditions at zero gradient is 1500 m. The airport is planned at an elevation of 900 m above sea level. Monthly mean of maximum daily temperature and mean of average daily temperature are 42.5°C and 21.6°C respectively. The effective gradient of proposed runway is 0.5%. Compute the actual runway length after corrections. [10]
8. Give the classification of Harbours. What are the features of a Harbour? While planning a Harbour, what considerations are to be given importance? [10]
9. Define breakwaters. Explain the types of breakwater structures with the help of neat diagrams. [10]
10. Discuss how Advanced Traveller Information Systems can be effectively used in Traffic Management. [10]
11. Giving an overview of ITS implementation in developing countries like India, discuss the issues related. [10]

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