Code No: 117JF (14ACIIA0101) **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2017
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 creep of rail? What is the standard length of rail? [2]
b) Determine the number of sleepers required for constructing a BG track 1042m long. Adopt sleeper density as n+9. [3]
c) Define Gradient and Grade Compensation. [2]
d) What are the elements to be considered for the geometric design of a railway track? [3]
e) Define the terms Airport capacity and Taxiway. [2]
f) Write briefly the various runway geometrics as recommended by ICAO. [3]
g) Define the terms Dry docks and Aprons. [2]
h) Write in detail about Features of Harbour. [3]
i) Define ITS and AVI. [2]
j) Write in detail about the ITS user services-Commercial Vehicle operations. [3]

PART-B

(50 Marks)

2.a) What is Composite Sleeper Index? What are the minimum values suggested for CSI for different types of sleepers in India? Also, explain the important points to be considered for good performance of timber sleepers.
b) Explain the necessity of sleepers in railway track. What are the desirable qualities of good sleepers? [5+5]

OR

3.a) With the help of a typical diagram, explain the components of a permanent way and also discuss their functions in the railway track.
b) What is ballast? What are its functions? [5+5]

4. Write short notes on:
a) Gradients adopted in Indian Railways
b) Cant and negative super elevation
c) Cant Deficiency and Degree of curve. [10]

OR

5.a) Describe the types of crossings with the help of neat sketches.
b) What is Cant Deficiency? Give the permissible values of cant deficiency for different gauges in India. [5+5]

6.a) Name the different characteristics of aircrafts. How do they affect the planning and design of airports?

b) What are the different types of aircraft propulsions? Discuss in brief each type. [5+5]

OR

7. An airport is proposed at an elevation of 500 m above mean sea level where the mean of maximum and mean of average daily temperatures of the hottest month are 46.8^0C and 28.2^0C respectively. The maximum elevation difference along the proposed profile of runway is 6.5m. If basic length of runway is 1360 m, determine the actual length of runway to be provided. [10]

8.a) Write in detail about the maintenance of Ports and Harbours.

b) Write in detail about the Navigational aids. [5+5]

OR

9.a) Write in detail about the planning of Harbour.

b) Write in detail about the Inland Water Transport. [5+5]

10. Write in detail about the ITS Architecture. [10]

OR

11.a) Write in detail about an overview of ITS implementations in developed countries with case studies.

b) Define briefly the term Advanced Public Transportation Systems (APTS). [5+5]

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