



Reg.No. _____

End Semester Examination – Nov/Dec - 2016

Code : 09CE209/ CE264 **Semester :** 2016-17 ODD
Sub. Name : Highways And Railways Engineering **Duration :** 3 hrs
Max. marks : 100

Q. No.	Questions	Marks
PART-A(10X1=10 MARKS)		
1.	What is expressway?	(1)
2.	Define the term obligatory points.	(1)
3.	What is the height of driver eye above the road surface as per IRC code?	(1)
4.	List the curves used in a highway.	(1)
5.	Classify pavement based on methods.	(1)
6.	What is soil subgrade?	(1)
7.	List the advantages of railways.	(1)
8.	Mention the gauge distance of Broad Gauge and Meter Gauge.	(1)
9.	Classify the types of yards.	(1)
10.	List the Various Types of the Gradients.	(1)

PART B(5 X 3= 15 MARKS)		
11	List the fundamental principles of alignment.	(3)
12	Define: super elevation.	(3)
13	Demonstrate the factors affecting stability of pavement.	(3)
14	Enumerate the various factors that govern the selection of various types of gauges.	(3)
15	List down the characteristics of Crossing.	(3)

PART C(5 X 15= 75 MARKS)		
16.	a.	Classify roads based on Nagpur plan, usage and carriage way. (15)
(OR)		
17.	a.	Summaries in detail about the highway alignment with its controlling factors and requirements. (15)
18.	a.	A national highway passing through a rolling terrain has two horizontal curves of radius 450 m and 150 m. Design the required super-elevation for the curves as per IRC guidelines. (15)
(OR)		
19.	a.	Elaborate about gradient and its types. (15)
20.	a.	Demonstrate the different layers of flexible pavement with an aid of a figure. (15)
(OR)		
21.	a.	Design the length and spacing of tie bars given that the pavement thickness is 20cm and width of the road is 7m with one longitudinal joint. The unit weight of concrete is 2400 kg/m^3 , the coefficient of friction is 1.5, allowable working tensile stress in steel is 1750 kg/cm^2 , and bond stress of deformed bars is 24.6 kg/cm^2 . (15)
22.	a.	Compare highways with railways. (15)
(OR)		
23.	a.	Discuss in detail about the functions, types and requirements of an ideal rail (15)
24.	a.	Describe about points and crossings in railways. (15)
(OR)		
25.	a.	Evaluate the role of signaling in railways. (15)

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