

Reg. No. \_\_\_\_\_

# Karunya University

(Karunya Institute of Technology and Sciences)

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

## End Semester Examination – November/December 2011

Subject Title: HIGHWAYS AND RAILWAYS ENGINEERING

Time: 3 hours

Subject Code: CE264

Maximum Marks: 100

### Answer ALL questions

#### PART – A (10 x 1 = 10 MARKS)

1. Define National Highway.
2. State the types of cambers.
3. Write the formula for amount of super-elevation.
4. State the types of curves.
5. Write the design methods of flexible pavement.
6. What are the types of pavements?
7. Define Creep of rail.
8. What do you mean by sleeper?
9. What is tongue rail?
10. What is goods yard?

#### PART – B (5 x 3 = 15 MARKS)

11. Write a short note on National highways and village roads.
12. State the advantages of super-elevation.
13. What are the factors considered for a rational design?
14. What do you mean by coning of wheel?
15. What is the information to be collected during preliminary survey?

#### PART – C (5 x 15 = 75 MARKS)

16. Write the objects of highway planning. What are the various surveys to carry out before planning a highway system for a given area? Explain briefly.  
(OR)
17. What is meant by alignment of roads? What are the points to be kept in mind while aligning a road?
18. While aligning a highway in a built up area, it was necessary to provide a horizontal circular curve of radius 325 m. Design the following geometric features.  
a. Super elevation   b. Extra widening of pavement   c. Length of transition curve  
(OR)
19. a. Explain ruling, maximum and exceptional gradient. Specify the values recommended by IRC for plains and hill.  
b. State the various considerations in deciding the ruling gradient of highways.
20. Explain the CBR method of pavement design. State the IRC recommendation for the CBR method design.  
(OR)
21. Explain the design of rigid pavements. State the IRC recommendation for the rigid pavement.

[P.T.O]

22. Compare between the road and railway transportation.

(OR)

23. What are the requirements of good rail sleepers?

24. What are the main classifications of station in India? Write short notes on each type.

(OR)

25. What do you understand by the term alignment? What point should be kept in mind while alignment of railway line.