Reg. No. _____

Karunya University

End Semester Examination – May / June 2009

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. State the objectives of IRC
2. Name the factors that control highway alignment
3. Define extra widening on curves
4. Define super elevation
5. State any two differences between rigid and flexible pavement
6. Name the various components of a pavement
7. Define creep of rail
8. Name the various gauges used in Indian railways
9. Classify yards
10. Name the various gradients used in Indian railways

PART – B (5 x 3 = 15 MARKS)

11. Classify urban and rural roads
12. Explain PIEV theory
13. Name the factors that affect design of a pavement
14. State the functions of ballast
15. What is the need of points and crossings

PART – C (5 x 15 = 75 MARKS)

16. Explain any two modern methods for conducting Engineering surveys
                                (OR)
17. Explain the various highway cross sectional elements

18. Calculate the safe stopping sight distance for a design speed of 50kmph for
    a.   Two way traffic on a single lane road
    b.   Two way traffic on a two lane road
    Assume coefficient of friction = 0.37, and reaction time of driver = 2.5 secs
                                (OR)
19. a.   Explain the various gradients used in highway   (6)
    b.   Explain the procedure to design a summit curve   (9)

20. Briefly out line the IRC method for designing flexible pavement
                                (OR)
21. Briefly out line the IRC method for designing rigid pavement

22. Draw a typical cross section of a railway track and explain the functions of   various components of a
    railway track.
                                (OR)
23. Write short notes on the following   (5+5+5)
    a.   Welding of rails   b.   Types of sleepers   c.   Rail joints

24. With a neat sketch explain left hand turn out
                                (OR)
25. a.   What are the different systems of controlling movement of trains. Explain any one (8)

b. What are the basic requirements to be provided in a railway station (7)