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**Question Paper Code : 31204**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fourth Semester

Civil Engineering

CE 2255/CE 46/CE 1255 A/10111 CE 406/080100022 — HIGHWAY ENGINEERING

(Regulation 2008/2010)

(Common to PTCE 2255 — Highway Engineering for B.E. (Part-Time) Third Semester – Civil Engineering – Regulation 2009)

Time : Three hours

Maximum : 100 marks

(Use of Tables and Charts in IRC 37 and IRC 58 are permitted)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define camber.
2. What is carriage way?
3. What is transition curve?
4. Briefly explain illumination sight distance.
5. List the applications of Rigid pavements.
6. Give the components of flexible pavements.
7. Mention the names of tests recommended by Indian standards for testing highway materials.
8. Define softening point.
9. List the types of defects in Flexible pavements.
10. Name the four methods of pavement evaluation.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the factors influencing highway alignment.

Or

- (b) Explain the role of Indian road congress.

12. (a) Explain the general principles to be followed in the design of horizontal alignments.

Or

- (b) Explain the factors governing sight distances.

13. (a) Determine the stresses at interior, edge and corner regions of a rigid pavement using westergards method. Take  $P=4100$  kg;  $E=3 \times 10^5$  kg/cm<sup>2</sup>,  $h=20$  cm,  $\mu = 0.15$ ,  $k=4.0$  kg/cm<sup>2</sup> and  $a = 15$  cm.

Or

- (b) Explain the steps involved in the IRC method of design of flexible pavements.

14. (a) Explain the method of construction of cement concrete road.

Or

- (b) Explain the procedure of stone polishing value test.

15. (a) Explain any three non-destructive testing methods of pavement deflection.

Or

- (b) Explain the procedure of overlay design by Benkelman beam method.

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