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Roll No

CE-501 (GS)**B.E. V Semester**

Examination, December 2017

Grading System (GS)**Transportation Engineering - II**

Time : Three Hours

Maximum Marks : 70

- Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. Explain superelevation. Derive an equation for finding the superelevation required.
2. Calculate the minimum sight distance required to avoid a head-on collision of two cars approaching from the opposite directions at 90 and 60kmph. Assume a reaction time of 3 seconds, coefficient of friction of 0.7 and a brake efficiency of 50 percent, in either case.
3. What are the desirable properties of bituminous mixes? What are the steps in bituminous mix designs? Discuss them.
4. Calculate the stresses at interior, edge and corner regions of a cement concrete pavement using Westergaard's stress equations. Use the following data:
 $P = 5100\text{kg}$; $E = 3.0 \times 10^5 \text{ kg/cm}^2$; $h = 18\text{cm}$; $\mu = 0.15$;
 $K = 6.5 \text{ kg/cm}^3$, $a = 15\text{cm}$.
5. What is a traffic rotary? What are its advantages and limitations in particular reference to traffic conditions in India?

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6. The following information was obtained from a transportation survey of a town

Traffic zone number	Population in the zone (thousands)	Total trips generated (thousands)
1	26	12
2	28	10
3	30	17
4	33	15
5	20	12
6	31	16
7	22	10
8	26	12

Develop a linear regression model for estimating the trips generated from a zone.

7. What do you understand by the term runway capacity? What are the factors affecting runway capacity? Discuss them.
8. Answer any four of the following:
 - a) What are the various methods of classifying roads? Give Nagpur road plan classification.
 - b) What are Dowel Bars? Explain functioning of dowel bar.
 - c) Differentiate between map cracking and reflection cracking.
 - d) Why is it necessary to plan airports on regional basis?
 - e) Explain the term roll or altitude.
 - f) Explain ILS.
