

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/Backlog), Nov-Dec 2016

B. Tech in Civil Engineering, Semester V

Roll No.....

CE 511: Transportation Engineering-I

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

- Q.1 A Objective type multiple choice questions (10 questions @ 1 mark) 10
- i. Value of 'e' is measured in; a) m, b) km, c) km/h, d) None.
 - ii. Lag Distance Plus Braking Distance is; a) SSD, b) OSD, c) ISD, d) SD.
 - iii. Find the odd one; a) Skid, b) Pavement, c) Camber, d) None of the above.
 - iv. Fastest way of transport is; a) Waterway, b) Roadway, c) Airway, d) Railway.
 - v. Maximum width of vehicle as per IRC is; a) 2.44m, b) 2.50m, c) 2.75 m, d) 3.00m.
 - vi. Width of carriageway for single lane is; a) 3.0m, b) 3.75m, c) 3.50m, d) None of the above
 - vii. Camber is also known as; a) Drain, b) Slope, c) Level, d) None of the above.
 - viii. The 1st 20-year road development plan is also known as a) Nagpur Plan, b) Lucknow Plan, c) Bombay Plan, d) None of the above.
 - ix. OSD depends upon; a) Skill, b) Speed, c) Gradient, d) All of the above.
 - x. In PIEV theory 'I' Stands for; a) Ideal, b) Inspire, c) Idea I, d) Intellectual.
- Q.2 Short answer type questions (4 questions @ 2.5 marks) 10
- i. Draw a neat sketch of radial or star and circular pattern of road?
 - ii. Write a note on super elevation?
 - iii. Explain the use of engineering studies in highway planning?
 - iv. Quote any five advantages of highway alignment?
- Q.3 A Enlist and explain the requirements for an ideal highway alignment 05
- Q.3 B Define super elevation and determine is the value of 'e' if speed of vehicle is 140 kmph and radius is 70 m? 05
- Q.4 A Define highway alignment and explain the factors affecting it? 05
- Q.4 B Calculate the SSD for a speed of 75kmph for two-way traffic on a two lane road? Assume co-efficient of friction as 0.25 and reaction time as 2.0 second? 05
- Q.5 A Explain the necessity of highway planning? 05

Q.5 B	Explain PIEV theory in brief?	05
Q.6 A	Explain the salient features of Lucknow Road Development Plan?	05
Q.6 B	Write note on SSD & OSD?	05
	OR	
Q.6 B	Determine the crown for a WBM pavement 4.5m wide for a MDR having moderate rainfall?	05
Q.7 A	Write a note on Camber and explain its types?	05
Q.7 B	Write a note on radial or star and block pattern of road?	05
	OR	
Q.7 B	Explain radial or star and grid pattern of road?	05
Q.8 A	Draw a neat labeled sketch of width of pavement on single lane road and explain it?	05
Q.8 B	Describe recommendation made by Jayakar Committee?	05
Q.9 A	Write note on ; a) OSD, b) SSD, c) SD, d) ISD and derive the formula for the same?	10
Q.9 B	From the data calculate the length based on Nagpur Road Plan: Total Area=5200sq.km, Agricultural Area=2500sq.km, no. of village range <500, 501-1000, 1001-2000, 2001-5000 and above 5000 are 520, 300, 250, 120 and 8 respectively. Length of railway track is 80km.	10
	OR	
Q.9 B	Describe the provisions made in third 20 year Road Development Plan	10