(25) TE- Sem-VI - OBSGS- Civil -T.E-II 11/12/17

Q. P. Code: 27363

(3 HOURS) (MAX. MARKS:80)

1. Q.No. 1 is compulsory
2. Attempt any three questions from remaining five questions.
3. Assume any data suitably if not given and state it clearly

Q.No.1. (a) Classify the road as per modified Nagpur Road Plan. [5]

(b) What are the various requirements of an ideal highway alignment. [5]

(c) Explain Various Types of Parking. [5]

(d) Explain various test on Bitumen. Explain any one. [5]

Q.NO.2 (a) Calculate the safe stopping sight distance for design speed of 50 kmph for [7]

(i) two way traffic on a two lane road (ii) two way traffic on a single lane road.

(b) Derive the expression for extra widening of pavement on horizontal curves. [7]

(c) Explain various types of Rotary Intersection with neat sketches. [6]

Q.No.3. (a) The following data were obtained from spot speed studies carried out at a city road during a certain period of time. Suggest (i) Lower speed limit (ii) Upper speed limit (iii) Speed to check geometric design element. **[10]**

Speed Range kmph	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-50	50-60	60-70	>70
No. Of Vehicles	45	230	375	500	680	525	430	290	110	25	8	2

(b)Explain various types of Conflict. Draw the neat sketches ofvarious traffic signs. **[10]**

Q.No.4.(a)Explain the various steps involved in design of Rigid Pavement as perIRC:58:2011 **[10]**

(b) A two- lane two- way carriageway carries a traffic of 2500 cvpd. The rate of growth of traffic is 7.5% per annum. The design life is 15 years. The vehicle damage factor is 3. The CBR value of soil is 5%. Design the Flexible pavement and draw the neat sketch of cross section of flexible pavement. Refer Table No.1. **[10]**

TURN OVER

Q.No.5. (a) Explain typical flexible pavement failure with neat sketches. [10]

(b) Design size and spacing of dowel bar at the expansion joints a C.C. Pavement thickness 25 cm with radius of relative stiffness 80 cm, for a design load of 5000 kg. Assume load capacity of the dowel system as 40% of the design wheel load. Joint width is 2.0 cm, permissible shear stress and flexural stresses in dowel bar are 1000 kg/cm^2 and 1400 kg/cm^2 respectively and permissible bearing stress in C.C. is 100 kg/cm^2 [10]

Q.No.6 (a) Write short notes on pavement evaluation. [5]

(b) Explain Hill Roads. [5]

(c) Explain various types of bearing in bridges. [5]

(d) What are assumption for Economical span of bridge.

Table 1.

Cumulative Traffic (msa)	Total Pavement Thickness (mm)	PAVEMENT COMPOSITION		
		Bituminous Surfacing		Granular Base and Sub- base (mm)
		BC (mm)	DBM(mm)	
10	660	40	70	Base= 250 mm Sub Base=300
20	680	40	100	
30	710	40	120	
50	730	40	140	
100	750	50	150	
150	770	50	170	

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