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Code No. : 16113

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD****B.E. (Civil Engg. : CBCS) VI-Semester Main Examinations, January-2021****Transportation Engineering**

Time: 2 hours

Max. Marks: 60

*Note: Answer any NINE questions from Part-A and any THREE from Part-B***Part-A (9 × 2 = 18 Marks)**

Q. No.	Stem of the question	M	L	CO	PO
1.	State the functional classification of roads as per IRC?	2	1	1	1,6
2.	Differentiate between stopping sight distance and overtaking sight distance?	2	3	1	1
3.	Describe the fundamental relationship between traffic speed and density?	2	2	2	1
4.	What are the causes of accidents and list their remedial measures	2	1	2	1,6
5.	What are the desirable properties of aggregates to be used in pavement construction?	2	1	3	1
6.	Distinguish between cutbacks and emulsions?	2	3	3	1,7
7.	Define lane distribution factor?	2	1	4	1
8.	Where vehicle damage factor is useful?	2	1	4	1
9.	Differentiate between tack coat and prime coat?	2	3	5	1
10.	Differentiate between WBM and WMM layers.	2	2	5	1,7
11.	Define carriageway and write its standard values for different lanes?	2	2	1	1
12.	Classify the road signs under the broad categories and give two examples under each?	2	1	2	1,6
<b>Part-B (3 × 14 = 42 Marks)</b>					
13. a)	Discuss the various factors controlling the highway alignment with sketches.	6	3	1	1,2,6,7
b)	Calculate the super elevation for a major district road with the bituminous pavement surface in low rainfall area which has horizontal curve of radius 1400 m, and the design speed is 65 kmph.	8	4	1	1,2
14. a)	List the factors to be considered in the design of intersection? Briefly explain the principles for design of intersection	6	2	2	1,2,6
b)	The average normal flow of traffic on cross road A and B during period are 410 on 260 PCU per hour, the saturation flow values on these roads are estimated as 1240 and 1050 PCU per hour respectively, the all red time required for pedestrian crossing is 12 seconds. Design two phase traffic signal by Webster method?	8	5	2	1,2

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15. a)	Briefly explain the procedure for attaining job mix formula using Rothfuch method.	7	3	3	1,2,6
b)	Write an overview on Marshall bituminous mix design procedure?	7	2	3	1,2,6
16. a)	Write the components of pavement structures and their functions?	6	2	4	1,6,7
b)	Explain the step by step procedure for the design of rigid pavements as per IRC 58 .	8	6	4	1,2,3
17. a)	Explain the procedure adopted for construction of Dense Bituminous Macadam layer?	7	2	5	1,2,6
b)	State the pavement failures and their remedial measures?	7	2	5	1,2,6,7
18. a)	Calculate the extra widening required for a pavement of width 7.0m on a horizontal curve of radius 200 m, if the longest wheel base of vehicle is 6.5 m. design speed is 65 kmph.	7	4	1	1,2,6
b)	What is the significance of conducting volume studies. Present the manual and automatic methods of volume study data collection.	7	2	2	1,2,5,6
19.	Answer any <i>two</i> of the following:				
a)	Write short note on Softening Point test and ductility test?	7	2	3	1
b)	Explain the factors to be considered for design of pavements?	7	2	4	1,2,6,7
c)	Write the steps involved in the construction of Wet Mix Macadam layer?	7	2	5	1,2

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	58
2	Knowledge on application and analysis (Level-3 & 4)	38
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	4

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