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Code No. : 16131 A S

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD*Accredited by NAAC with A++ Grade***B.E. (Civil Engg.) VI-Semester Advance Supplementary Examinations, August-2022****Highway Engineering**

Time: 3 hours

Max. Marks: 60

*Note: Answer all questions from Part-A and any FIVE from Part-B**Part-A (10 × 2 = 20 Marks)*

Q. No.	Stem of the question	M	L	CO	PO
1.	What are the uses of Road patterns?	2	1	1	1
2.	What are the advantages of transition curves used in highway alignment?	2	2	1	1
3.	Describe the relationship between speed and density?	2	1	2	1
4.	What are the various techniques for conducting origin destination studies?	2	2	2	1
5.	State any two differences between Marshall and Modified Marshall Stability Test?	2	2	3	5
6.	How the cutbacks are different than emulsions?	2	2	3	1
7.	Classify the joints used in CC pavements?	2	1	4	1
8.	State the functions of different layers of a flexible pavement?	2	1	4	1
9.	Distinguish WBM and WMM layers of pavement?	2	1	5	1
10.	Distinguish tack coat and prime coat?	2	1	5	1
Part-B (5 × 8 = 40 Marks)					
11. a)	Explain the functional classification of roads in India	4	3	1	1,6
b)	Calculate the superelevation to be provided on a horizontal curve on a State Highway in plain terrain with the design speed of 100 kmph and the curve radius of 300m? Assume, any missing values as per IRC Standard?	4	4	1	2
12. a)	What are the objectives of conducting traffic volume studies? Write the broad classification of traffic studies and briefly explain the each?	5	2	2	1,6
b)	A moving car study was conducted over a road stretch of 10 km at a constant speed of 80 km/hr. During the study, it was observed that the test car is passed by 20 vehicles more that it passes. Number of vehicles that met against stream was 300. Calculate the traffic flow rate (veh/hr) in this direction?	3	4	2	2

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13. a)	Describe the blending of aggregates and application of job mix formula by Rothfutch procedure?	4	3	3	1
b)	Briefly explain how simulation of short term aging and long term aging of bitumen is carried out by laboratory testing?	4	3	3	5
14. a)	Draw a flow chart showing all the steps involved in design flexible pavement as per IRC:37-2018?	4	3	4	3
b)	State the factors affecting rigid pavement design? What are the role of various parameters considered in design	4	2	4	1
15. a)	Explain the procedure adopted for construction of Bituminous Concrete?	4	2	5	1
b)	Explain the procedure adopted for construction of Granular subbase	4	3	5	1
16. a)	Write the factors governing Geometric design of highways?	4	2	1	1,6,7
b)	Write the functions of road markings, signs and signals? What are various types of road signs? Give examples under each	4	2	2	1,6
17.	Answer any <i>two</i> of the following:				
a)	Desirable properties of paving binders and road aggregates.	4	2	3	1
b)	Salient features of IRC:58-2015	4	3	4	3
c)	Causes and remedial measures of pavement failures?	4	1	5	1,6

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

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%
