Total No. of Printed Pages: 2

PRN No.	

PAPER CODE	U314-223 (ESE)

(AY:2024-25) December 2024 (ENDSEM) EXAM

TY (SEMESTER - I)

COURSE NAME: Transportation Engineering **Branch: Civil Engineering** **COURSE CODE: CVUA31203**

(T.Y PATTERN 2020)

Time: [1Hr 30 Min] **[Max. Marks: 40]**

(*) Instructions to candidates:

1) **Figures to the right indicate full marks. Use of scientific calculator is allowed**
2) **Use suitable data wherever required**
3) **All questions are compulsory. Solve any two sub question each from Questions 1 and 2**
4) **Solve any one sub question (2 marks) from Questions 3 ,4 ,5 and 6 and sub question of 4 marks is compulsory from questions 3,4,5,and 6**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) What is superelevation? Why it is necessary? State the minimum and maximum values of super elevation as per Indian Roads Congress. (IRC).	[4]	1	Understanding
	b) Explain PIEV theory with the help of a sketch and explain its importance in SSD and OSD.	[4]	1	Understanding
	c) Write a note on various stages of Engineering surveys.	[4]	1	Understanding
Q2	a) A passenger car is moving at a design speed of 80 kmph, on a National highway at an ascending gradient of 2%. Assuming the values of "t"and "f" equal to 2.5 secs and 0.348 respectively, determine the stopping sight distance for a. Two lane road with two-way traffic. b. Single lane road with two-way traffic.	[4]	2	Applying
	b) n1 = +1/50 and n2 = −1/80, SSD=180m, OSD=640m. Due to site constraints, L is limited to 500m. Calculate the length of summit curve to meet SSD, ISD and OSD. Discuss results.	[4]	2	Applying
	c) Determine the safe overtaking sight distance for both one-way traffic a two way traffic situation for design speed of 96kmph.Assume all other data as per IRC recommendation.	[4]	2	Applying
Q3		[2]	3	Remembering

	a) What are points and crossings in railway tracks? OR b) State two types of modern sleepers used in railway tracks c) Discuss the modern developments in railways, focusing on metro rails and bullet trains	[2] [4]	3 3	Remembering Understanding
Q4	a) State two factors to be considered when selecting a site for an airport. OR b) What is runway elevation, and how does it affect runway design? c) Describe the main components of an airplane and their functions.	[2] [2] [4]	4 4 4	Remembering Remembering Understanding
Q.5	a) State the role of an abutment and superstructure in a bridge. OR b) Enlist the classification of bridges based on different parameters c) Explain the concept of economical span and its significance in bridge design.	[2] [2] [4]	5 5 5	Remembering Remembering Understanding
Q.6	a) What is mucking in tunneling operations? OR b) What are two key requirements of a good harbour? c) Explain the key considerations when selecting a method for tunneling in hard and soft ground with sketch.	[2] [2] [4]	6 6 6	Remembering Remembering Understanding