

Enrolment No./Seat No\_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024

Subject Code:2150601

Date:27-05-2024

Subject Name:Highway Engineering

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) In brief discuss the importance of highway planning for country like India.	03
	(b) Define these terms – Camber, Stopping Sight Distance, Highway gradient	04
	(c) Enlist the factors affecting the highway geometric design and explain any two in detail. Use neat diagrams.	07
Q.2	(a) Give full forms of these – NHAI, SSD, OSD.	03
	(b) Explain Nagpur Road Classification.	04
	(c) Explain Camber with neat diagram. What is the importance of the same? Explain in detail.	07
	<b>OR</b>	
	(c) In detail explain PIEV theory and its significance. Use neat diagrams.	07
Q.3	(a) Obtain SSD for given data – $V = 75$ KMPH, $f = 0.35$ , $t = 2.5$ .	03
	(b) In brief explain penetration test on bitumen with neat diagram.	04
	(c) In detail, explain CBR test on soil with neat diagram.	07
	<b>OR</b>	
Q.3	(a) What is aggregate?	03
	(b) Differentiate between hardness and toughness of aggregate.	04
	(c) What is the significance of traffic volume study? What are the difference methods for the same?	07
Q.4	(a) What is cutback bitumen?	03
	(b) Differentiate flexible and rigid pavement.	04
	(c) Draw neat sketch of WBM type road.	07
	<b>OR</b>	
Q.4	(a) What is bitumen emulsion?	03
	(b) Explain seal coat, tack coat, prime coat for a flexible highway payment.	04
	(c) Explain road arboriculture in detail.	07
Q.5	(a) In brief discuss vehicle dimension as one of the important parameter for highway planning.	03
	(b) What is a traffic rotary? What are its advantages?	04
	(c) Short note – Road User Characteristics.	07

**OR**

- Q.5** (a) Explain significance of highway drainage. **03**  
(b) Draw neat diagram of Channelization of traffic through a four-legged intersection **04**  
(c) Short note – Types of Parking. **07**

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