Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–V (NEW) EXAMINATION – WINTER 2020

Subject Code:3150611   **Date:29/01/2021**
Subject Name:Transportation Engineering
Time:10:30 AM TO 12:30 PM   **Total Marks: 56**
Instructions:
1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

                                                                       MARKS

Q.1	**(a)**	What are the different modes of transportation? Write the importance of it in context to socio-economic development.	**03**
	(b)	Draw the detail cross section of highway, showing all the components of it. Explain the use of Camber	**04**
	(c)	Define sight distance. Derive an expression for calculation of stopping sight distance on a highway.	**07**
Q.2	**(a)**	Differentiate between Flexible and Rigid Pavement	**03**
	(b)	Write the objective and classification of highway maintenance works	**04**
	(c)	Write in detail the reason of failure and suggestion for improvement of following distresses in pavement (i) Potholes, (ii) Elegator cracking	**07**
Q.3	**(a)**	What are the advantages of common rail gauge throughout the nation?	**03**
	(b)	Draw the cross section of permanent way showing all components of it. Write the importance of rail.	**04**
	(c)	Write a note on "Coning of wheel"	**07**
Q.4	**(a)**	Define Creep in rail. Write the theory behind it	**03**
	(b)	Draw the diagram of the "Points & Crossing" showing all components of it in detail	**04**
	(c)	Write a note on "Junction and terminal"	**07**
Q.5	**(a)**	What are the different traffic control devices? Explain in detail about the warning sign.	**03**
	(b)	Enlist the different types of parking? Explain at list one advantage of each type of parking.	**04**
	(c)	Draw the typical diagram of harbour showing all components. Write down the importance of Jetty, turning basin and Breakwater.	**07**
Q.6	**(a)**	Define: (i) Running Speed (ii) Spot Speed (iii) Volume	**03**
	(b)	Enlist different types of traffic surveys. What is the significance of Delay studies?	**04**
	(c)	What are the different points to be taken care while selecting the site for airport?	**07**
Q.7	**(a)**	Enlist the different components of Airport. Explain the importance of Taxiway.	**03**
	(b)	Where and why super elevation is required?	**04**
	(c)	Enlist the test on aggregates. Explain any one in detail.	**07**

Q.8 **(a)** Differentiate between Dry dock & Wet dock **03**

(b) Explain in detail about where and why transition curve is required? **04**

(c) Derive an expression for finding the extra widening required on horizontal curve **07**

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Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2021

Subject Code:3150611   **Date:17/12/2021**
Subject Name:Transportation 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)	Compare the roadway and railway transportation.	03
	(b)	Write a short note on ICAO.	04
	(c)	Differentiate between Nagpur and Bombay Road development plan.	07
Q.2	(a)	Briefly explain classification of urban roads.	03
	(b)	Explain PIEV theory.	04
	(c)	Describe various factors controlling the highway alignment.	07
		OR	
	(c)	Derive an expression for calculating the stopping sight distance on a roadway.	07
Q.3	(a)	Explain Impact test on aggregate.	03
	(b)	What are the requirements of widening pavement on horizontal curves?	04
	(c)	Calculate the length of OSD for a design speed of 70 kmph on a two lane undivided straight level road. Assume reaction time of a driver 2.2 sec, acceleration power of overtaking vehicles 1.10 m/sec^2 and speed of slow moving vehicles 57 kmph.	07
		OR	
Q.3	(a)	What are the desirable properties of aggregate used in the road construction?	03
	(b)	Enlist different tests for bitumen and explain softening test briefly.	04
	(c)	Derive an equation to calculate super elevation on horizontal circular curve.	07
Q.4	(a)	What are the significance and requirements of highway drainage system?	03
	(b)	Describe Construction procedure of Granular Base Course-WBM.	04
	(c)	Briefly explain the various types of joints used in the construction of cement concrete pavement.	07
		OR	
Q.4	(a)	Define – (1) Running Speed (2) Spot Speed (3)Journey Speed	03
	(b)	Discuss various factors to be considered in flexible pavement design.	04
	(c)	Enlist types of parking. Explain various methods of on street parking.	07
Q.5	(a)	What are the advantages and disadvantages of traffic signals?	03
	(b)	State the concept of PCU value and the factors affecting PCU values.	04
	(c)	Discuss preventive measures of the accidents.	07
		OR	
Q.5	(a)	What is the importance of wind rose diagram in runway orientation?	03
	(b)	Explain the following terms: (1) Jetty (2) Dolphin (3) Dredging (4) Wharf	04
	(c)	Explain Points & Crossing with neat sketch.	07

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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2021

Subject Code:3150611   **Date:05/10/2021**
Subject Name:Transportation Engineering
Time:10:30 AM TO 01:00 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)	Enlist the functions of IRC.	03
	(b)	Explain the classification of the urban roads.	04
	(c)	Enlist and explain advantages and disadvantages of each modes of transportation.	07
Q.2	(a)	Explain importance of super elevation in highway geometry design.	03
	(b)	Explain in brief 1. OSD 2. SSD.	04
	(c)	Draw the sketch of flexible pavement and rigid pavement with description of components.	07
		OR	
	(c)	Explain soil stabilization in pavement construction.	07
Q.3	(a)	Enlist different tests on aggregates.	03
	(b)	Explain the classification of highway maintenance work.	04
	(c)	Explain aggregate impact test.	07
		OR	
Q.3	(a)	Enlist different tests on bitumen.	03
	(b)	Explain Running Speed, Journey Speed with relevant example.	04
	(c)	Explain determination of penetration value of bitumen.	07
Q.4	(a)	Enlist Methods of O and D Survey.	03
	(b)	Explain types of on street parking in brief.	04
	(c)	Explain different road user characteristics in traffic engineering.	07
		OR	
Q.4	(a)	Significance of Coning of wheel in Railway in brief.	03
	(b)	Explain Role of Indian Railways in National Development.	04
	(c)	Explain various measures for the reduction in accident at curvature on highway.	07
Q.5	(a)	Define 1. Harbor 2. Port.	03
	(b)	Explain Jetty and Breakwater.	04
	(c)	Explain the classification of harbor in detail.	07
		OR	
Q.5	(a)	Define 1. Taxiway. 2. Apron.	03
	(b)	Enlist Aircraft Component parts with sketch.	04
	(c)	Explain the classification of Airport in detail.	07

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Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022

Subject Code:3150611   **Date:07/06/2022**
Subject Name:Transportation 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)**	Write a short note on ICAO.	**03**
	(b)	Compare the roadway and railway transportation.	**04**
	(c)	What are the various tests carried out on Bitumen? Explain Ductility Test.	**07**
Q.2	**(a)**	Explain the conning of wheel with neat sketch.	**03**
	(b)	Explain PIEV theory.	**04**
	(c)	Derive an expression for calculating overtaking sight distance on a Highway.	**07**
		OR	
	(c)	Derive an expression for finding stopping sight distance at level and at grades.	**07**
Q.3	**(a)**	Write Short note on: Street Lighting.	**03**
	(b)	Distinguish between flexible pavement and rigid pavement.	**04**
	(c)	Explain various methods of On-street Parking.	**07**
		OR	
Q.3	**(a)**	Write the objective of highway maintenance works.	**03**
	(b)	Explain construction step for WBM.	**04**
	(c)	Describe the plate load test in detail. What is the limitation of plate load test?	**07**
Q.4	**(a)**	Define Creep in rail. Write the theory behind it.	**03**
	(b)	Explain importance of Highway Drainage.	**04**
	(c)	A 5° curve diverges from a main curve of 4° in an opposite direction in the layout of a broad gauge yard. If the speed on the main curve is restricted to 54.33 kmph, determine the speed restriction on the branch line. Assume permissible cant deficiency as 7.5 cm.	**07**
		OR	
Q.4	**(a)**	Draw the diagram of the "Points & Crossing" showing all components of it in detail.	**03**
	(b)	Describe the maintenance of bituminous roads.	**04**
	(c)	Write a note on "Junction and terminal".	**07**
Q.5	**(a)**	Explain various factors determining selection of Breakwater.	**03**
	(b)	Distinguish between harbor and Port.	**04**
	(c)	Describe main components of terminal building with sketch and what facilities are provided in the terminal building.	**07**

Q.5 **(a)** Enlist the different components of Airport. Explain the importance of Taxiway. **03**

(b) What is runway orientation? What are the factors affecting runway orientation? **04**

(c) What is the purpose of navigational aids? Explain any one aid. **07**