Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3172215 Date:16-01-2023

Subject Name:Rock Slope 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)**	Define slenderness ratio and its affect.	**03**
	(b)	Write a note on slope geometry with suitable layout.	**04**
	(c)	Explain the mechanics of planer failure.	**07**
Q.2	**(a)**	Classify type of slopes in a mine.	**03**
	(b)	Discuss the effect of geological discontinuities in rock mass.	**04**
	(c)	Explain various slope stabilization techniques.	**07**
		OR	
	(c)	Explain time-movement and time velocity plots used in slope monitoring.	**07**
Q.3	**(a)**	Explain slenderness ratio in toppling failure and its effects.	**03**
	(b)	State the importance of slope angle in a mine.	**04**
	(c)	Explain the use of GPS in slope monitoring.	**07**
		OR	
Q.3	**(a)**	Explain dynamic loading.	**03**
	(b)	Write a note on field instruments used for monitoring of slopes.	**04**
	(c)	Explain the economic significance of good slope in a mine.	**07**
Q.4	**(a)**	Classify different modes of slope failure.	**03**
	(b)	Discuss the role of slope angle on opencast mining economics.	**04**
	(c)	Discuss different parameters considered while designing highwall slope.	**07**
		OR	
Q.4	**(a)**	List the geological factors affecting slope stability.	**03**
	(b)	Classify types of slopes in surface mines.	**04**
	(c)	Write a note on drainage system and its effect on slope stability.	**07**
Q.5	**(a)**	Define: i. Weathering ii. Creep	**03**
	(b)	List the factors affecting slope stability.	**04**
	(c)	Explain the principle of limiting equilibrium method of slope stability analysis.	**07**
		OR	
Q.5	**(a)**	List various methods used for slope stability analysis.	**03**
	(b)	Explain toppling failure.	**04**
	(c)	Explain the mechanics of rotational failure.	**07**

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