Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2023

Subject Code:3172215 Date:01-12-2023

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)**	Discuss the basic principles of rock slope engineering for the open-pit mining.	**03**
	(b)	Describe the statutory norms and technical features for design of damps.	**04**
	(c)	Explain the mechanics of slope failure.	**07**
Q.2	**(a)**	Discuss the geological factors affecting slope stability.	**03**
	(b)	List out the instruments used for monitoring of slope. Explain any one.	**04**
	(c)	Define plain failure. Explain plain failure analysis.	**07**
		OR	
	(c)	Define circular failure. Explain circular failure charts.	**07**
Q.3	**(a)**	Discuss the operation of slope stability in open-pit mining.	**03**
	(b)	Describe the factors affecting load and resistance in design of rock slopes.	**04**
	(c)	Explain the different methods for slope stability analysis.	**07**
		OR	
Q.3	**(a)**	Explain socio economic consequence of slope failure.	**03**
	(b)	Discuss the slope geometry for stability of slopes.	**04**
	(c)	Explain surface monitoring methods of rock slope.	**07**
Q.4	**(a)**	Explain dynamic loading of slope stability.	**03**
	(b)	Discuss the design of tailing dump.	**04**
	(c)	Define term wedge failure. Explain comprehensive analysis of wedge failure.	**07**
		OR	
Q.4	**(a)**	Explain equipment loading of slope stability.	**03**
	(b)	Discuss the design of waste dump.	**04**
	(c)	Define toppling failure. Explain analysis of toppling failure.	**07**
Q.5	**(a)**	Explain probabilistic approaches for slope stability analysis.	**03**
	(b)	Discuss the role of ground water in rock slope.	**04**
	(c)	Explain the hoek-brown strength criteria for rock masses.	**07**
		OR	
Q.5	**(a)**	Explain deterministic approaches for slope stability analysis.	**03**
	(b)	Discuss the role of slope stability in in economic design.	**04**
	(c)	Explain bishop’s and janbu’s method for rock slope.	**07**

****