Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-Vth Examination December 2010

Subject code: 152204

Subject Name: Advance Mine Surveying

Date: 18 /12 /2010 **Time: 03.00 pm - 05.30 pm**

Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Write a short note on types of circular curves. Explain Rankine method of tangential angles for setting out the curves.	**07**
	(b)	What are the purposes of correlation surveying? Add a note on precautions and uses of Gyrotheodolite.	**07**
Q.2	**(a)**	Explain Planimeter and its uses.	**07**
	(b)	Describe the coplaning method of correlation survey for surface and underground workings of a mine.	**07**
		OR	
	(b)	Write in short a method of magnetic correlation for connecting the surface survey with the survey of underground workings of a mine. What are the drawbacks of these methods?	**07**
Q.3	**(a)**	Explain any two linear methods for setting out simple circular curves.	**07**
	(b)	Explain Hanging compass with its applicability in mining and its method of working.	**07**
		OR	
Q.3	**(a)**	Give the elements of a compound curve with a neat sketch.	**07**
	(b)	Explain any one method of stop surveying, which are used in metal mines.	**07**
Q.4	**(a)**	List out the methods of enlargement of plans. Explain Ediograph and Pantagraph with neat sketches.	**07**
	(b)	The dip of the strata at a colliery is 18° in a direction due South. A coal seam is passed through in a borehole and has a recorded thickness of 3.25 meters, but the borehole is found to be deflected 10° from the vertical where it passes through the seam. The borehole is deflected in the direction S 30° E. Calculate the true thickness of the seam.	**07**
		OR	
Q.4	**(a)**	Explain different Mine models.	**07**
	(b)	In a seam dipping at 1 in 8 one upthrow fault is met with. The fault hades at 30° and has thrown the seam by 14.4 meters. Calculate the length of a drift rising at 1 in 4 driven to meet the seam on the other side of the fault. Assume that the direction and rate of dip of the seam remains unchanged on the other side of the fault.	**07**
Q.5	**(a)**	What is Photogrammetric Surveying? What are its advantages? Describe the field work of terrestrial photographic surveying.	**07**
	(b)	Write down different applications of GIS and GPS.	**07**
		OR	
Q.5	**(a)**	Explain Scale of vertical photographs.	**07**
	(b)	List out the types of plans. What are the legal requirements as to mine plans in India?	**07**

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