Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

P.D.D.C. Sem- II Remedial Examination Nov / Dec. 2010

Subject code: X20601 **Subject Name: Surveying**

Date: 29 / 11/ 2010 **Time: 10.30 am – 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.**

Q.1 (a) Derive the following tacheometric equations for inclined, elevated sight and staff vertical. **07**

1. $D = ks\cos^2\theta + c\cos\theta$
2. $V = \dfrac{ks\sin 2\theta}{2} + c\sin\theta$ with usual notations

(b) A tacheometer was set up at a station A and the following readings were obtained on a vertically held staff. Calculate the horizontal distance from A to B and RL of B if the constants of the instrument were 100 and 0.4 **07**

Station	Staff station	Vertical angle	Hair readings	Remarks
A	B.M.	-2° 18'	3.225,3.550, 3.875	RL of BM = 437.655m
	B	+ 8° 36'	1.650, 2.515, 3.380	

Q.2 (a) Draw a neat sketch of simple circular curve. Define Point of curve, Point of tangency, Point of inter-section and long chord. Show the above components on the sketch drawn. **07**

(b) Enlist different methods for setting out simple curves and explain successive bisection of arcs with neat sketch. **07**

OR

(b) Define Compound curve, Reverse curve and Transition curve and state the situations in which these curves are introduced. **07**

Q.3 (a) What do you understand by sounding? What are the purposes of sounding? Enlist the equipment needed for sounding and explain any one in brief. **07**

(b) Enlist the methods of locating sounding and explain cross-rope method in detail. **07**

OR

Q.3 (a) Write a detailed note on the Three Point Problem with reference to hydro-graphic survey. **07**

(b) A, B and C are three visible stations in a hydrographical survey. The computed sides of the triangle ABC are: AB=1130m, BC=1372m and CA=1889m. Outside this triangle (and nearer to AC), a station P is established and its position is to be found by three point resection on A, B and C, the angles APB and BPC being respectively 42˚35' and 54˚20'. Determine the distances PA and PC **07**

Q.4	**(a)**	Classify photogrammetry and explain stereoscopic vision in brief.	**07**
	(b)	The scale of an aerial photograph is 1cm = 100m. The photograph size is 20cm x 20cm. Determine the number of photographs required to cover an area of 100 sqkm, if the longitudinal lap is 60% and the side lap is 30%.	**07**

OR

Q.4	**(a)**	Compare conventional Theodolite and Total Station mentioning their merits and demerits.	**07**
	(b)	Enlist the types of EDM instruments and explain any one type in detail.	**07**

Q.5	**(a)**	Define the following terms: 1. Zenith and Nadir 2. Mean solar time 3. Sidereal time 4. Standard time 5. Apparent solar time 6. Celestial Sphere	**07**
	(b)	Write a brief note on Globle Positioning System.	**07**

OR

Q.5	**(a)**	What is meant by GIS? Describe the functions of GIS.	**07**
	(b)	Describe the field procedure to determine the tacheometric constants k and c.	**07**

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