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SF-6441

B. E. - II (Sem - IV) (Civil) Examination

May / June – 2011

Survey - II

Time : Hours] [Total Marks :

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - II (Sem - IV) (Civil)**

Name of the Subject :

☛ **Survey - II**

☛ Subject Code No. : **6 4 4 1** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Figures to the right inidcate full marks.

(3) Draw neat and labeled sketch wherever required.

(4) Assume suitable data if required and maintain it clearly.

1 Attempt any two. **16**

(i) Explain principle of stadio method and derive the expression of elevation when linert sight is inclined and staff held vertical.

(ii) Explain the procedure for carring out techeometric survey on field.

(iii) What is base line. State the various points to be broadly considered in selection of base line.

2 Attempt any **two**. **16**

(i) Define Geodatic survey. Explain the principle of triangulation system.

(ii) Explain the necessity and advantages of EDM.

(iii) What is remote sensings state the meaning of active and passive systems.

3 (a) A tacheometer having constant 100 and 0.4m reading were taken on vertical staff at station P and Q as follows. 4

Inst. station	*Staff station*	*Hair reading*
A	*P*	1.200, 2.300, 3.400
	Q	0.300, 2.10, 3.900

R_L of station $P = 100.00m$

Calculate the horizontal distance between A and Q and reduced level of Q.

(b) Attempt any **two**. 14

(i) Determine the gradient from a point A to a point B from following observations mode with a tacheometer fitted with an and electic lens. The constant of instrument was 100 and staff held vertically

Inst station	*Staff station*	*Bearing*	*Vertical angle*	*Staff reading*
P	*A*	134°	+10°32′	1.360, 1.915, 2.47
	B	224°	+5°6′	1.065, 1.885, 2.705

(ii) Two triangulation stations A and B are 60 kilometers a part and have elevation 240m and 280m respectively. Find the minimum height of signal required at B so that the line of sight may not pass near the ground than 2m. The intervenings ground may be assumed to have a uniform clevation of 300 metres.

(iii) Derive the expression of phase correction when observation is made on the bright line and bright phase.

4 Fill in the blanks. **6**

(i) The rotation of an aerial camera about the line of flight is known as _____.

(ii) The usual longitudinal overlap in aerial photogrammetry is _____.

(iii) 1 Nautical miles - _____.

(iv) If the standard variation is 1", the maximum error would be _____.

(v) GMM stands for _____.

(vi) Spherical excess in seconds is given by _____.

5 (a) What is weight of a quantity ? How would you allocate the weights to different quantities ? **6**

OR

(a) Discuss the laws of accidental errors.

(b) The following observations were recorded for an angle under identical conditions : **6**

$162°20'00''$ $162°21'20''$ $162°21'40''$
$162°20'40''$ $162°19'40''$ $162°21'20''$

Calculate the

(i) Most probable value

(ii) Standard deviation

(iii) Most probable error.

3 (a) State the various components of aerial camera and draw its sketch. **6**

OR

3 (a) Derive the expression with sketch for scale of vertical photograph in flat terrain and explain datum scale.

(b) Two points A and B having elevations of 700 m and 300 m respectively above datum, appear on a vertical photograph obtained with a camera of focal length of 250 mm and flying attitude of 280 m above datum. Their correlated photographic co-ordinates are as follows : **6**

Point	Photographic Co-odinates	
	$x(cm)$	$y(cm)$
A	+4.65	+3.54
B	−2.5	+6.59

Calculate the length of the ground line AB.

4 (a) Explain the following terms. **5**

(i) Celestial sphere

(ii) The terrestrial equator.

(b) Attempt any three. **15**

(i) Mirror stereoscope

(ii) Explain photomap and mosaic

(iii) Crab and drift

(iv) Spherical triangle and Zenith, Nadir.