53 (CE 401) SURV-II

2017

SURVEYING-II

Paper : CE 401

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***all*** *the questions.*

1. *(a)* The following offsets were taken from a chain line to a hedge : 10

Chainage :	0	15	30	45	60	70	80	100	120
Offsets :	7·60	8·5	10·7	12·8	10·6	9·5	8·3	7·9	6·4

Calculate the area between the survey line, the hedge and the end offsets by

(i) Trapezoidal rule

(ii) Simpson's rule.

(c) Determine the gradient from a point A to a point B from the following observations made with a tacheometer fitted with an anallactic lens. The constant of the instrument was 100 and staff was held vertically. 10

Instrument Station	Staff Point	Bearing	Vertical angles	Staff readings
P	A	134°	+12°24'	1·480, 1·925, 2·370
	B	224°	+5°15'	1·048, 1·642, 2·236

4. (a) Write down the advantages and disadvantages of GIS. 10

(b) What do you understand by GPS ? Write a note on application of GPS. 10

5. (a) Derive an expression for distance and elevation formulae for an inclined line of sight at an angle of elevation. Base of the object in inaccessible, object and instrument stations are in same vertical plane and staff was held vertically. Also give the expression for R.L. of top of the object. 10

(b) Explain with the help of a neat sketch an idealized remote sensing system. 10

2. (a) Explain the procedure for setting out a simple circular curve by the method of offsets from chords produced. 10

(b) What is satellite station in triangulation ? Explain the methods to determine the intervisibility between triangulation stations. 10

3. (a) The scale of an aerial photograph is $1cm = 160m$ and the size of the photograph is $20cm \times 20cm$. If the longitudinal lap is 65% and side lap is 35%, determine the number of photographs required to cover an area of $300km^2$. 5

(b) What is Remote sensing ? What is the basic principle of remote sensing ? Differentiate between active and passive remote sensing. 5

(b) A simple circular curve is to be set out by Rankine's method of Deflection angles. Calculate all the necessary data, if the radius of curve is 20*m* and angle of intersection between two tangents is 102°0'. 10