

## INTERNATIONAL CENTRE FOR APPLIED SCIENCES MAHE, MANIPAL

## B.Sc. (Applied Sciences) in Engg. End – Semester Theory Examinations – Nov./ Dec. 2020 III SEMESTER - SURVEYING (ICE 234)

(Branch: Civil)

Time: 3 Hours	Date: 27 November 2020	Max. Marks: 50
✓ Answer ALL the q	uestions.	
✓ Missing data, if any	y, may be suitably assumed	
✓ Draw neat sketches	s wherever necessary	
1A. What are the principl	es of surveying? Explain.	
1B. Explain how surveying	ng is classified based on	
(i) Instrument used	l.	
(ii) Purpose of sur	vey.	(5+5)
2A. Define the following	terms used in levelling.	

- (i) Benchmark.
- (ii) Elevation.
- (iii) Backsight.
- (iv) Foresight.
- (v) Change point
- 2B. The following consecutive readings were taken using dumpy level and 4 metre levelling staff on consecutively sloping ground at a common interval of 30m:
  0.585 on A, 0.936,1.953,2.846,3.644,3.938,0.962,1.035,1.689,2.534,3.844,0.956,1.579,3.016 on B. The elevation of A was 520.450. Make up a level book and apply the usual checks. Determine the gradient of line AB (5+5)
- 3A. Explain in detail the procedure for measurement of horizontal angle by repetition method.
- 3B. The top (Q) of a chimney was sighted from two stations P and R at very different levels, the stations P and R being in line with the top of the chimney, the angle of elevation from P to top of the chimney was 38°21' and that from R to the top of the chimney was 21°18'. The angle of the elevation from R to a vane 2m above the foot of the staff held at P was 15°11'. The heights of the instrument at P and R ere 1.87m and 1.64m respectively. The horizontal distance between P and R was 127m and the reduced level of R was 112.78m. Find the R.L of the top of the chimney and the horizontal distance from P to the chimney.

(5+5)

- 4A. With the neat sketch find an expression for the distance and elevation formula for the inclined line of sight and staff held vertical to the line of sight in fixed hair method.
- 4B. With the help of neat figure explain the characteristics of contour. (5+5)
- 5A. Two tangents intersect at the chainage of 1190m, the deflection angle being 36°. Calculate all the data necessary for setting out a simple curve with radius of 300m by deflection angle method. The peg interval is 20m.
- 5B. What do you mean by an ideal transition curve? Derive the intrinsic equation for the same.

(5+5)