

## (OLD COURSE)

(3 Hours)

[ Total Marks : 100

- N.B. :** (1) Question No. 1 is compulsory.  
 (2) Attempt any four question out of remaining six question.  
 (3) **Figures to the right indicate full marks.**

1. (a) Answer any **four** : 20
- (a) Explain principles of surveying with suitable example.
  - (b) Explain various difficulties in levelling
  - (c) Explain the procedure of measuring the bearing of line using theodolite.
  - (d) Advantages and disadvantages of plane table survey.
  - (e) Compare Trapezoidal rule and Simpson's Rule.
2. (a) Explain why zero is marked at South in prismatic compass with sketch. 6
- (b) Explain reciprocal ranging with sketch. 7
- (c) A 30m chain was found to be 20cm too long after chaining 1500m. The same chain was found to be 30cm too long after chaining a total distance of 3000m. Find the correct length of total distance chained assuming that the chain was correct at the commencement of wall. 7
3. (a) The following reading were taken with a dumpy level and 4m staff on a continuously sloping ground at common interval of 30m. 8  
 0.680, 1.455, 1.855, 2.330, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530 and 2.445.  
 The reduced level of the first point was 80.750. Make a level book and apply usual checks. Determine the gradient of a line.
- (b) What is reciprocal levelling ? Explain the same with neat sketches. 6
- (c) Why east and west are interchange in surveyors compass. 6

4. (a) In a traverse ABCDE, the following length and bearings were recorded. 8  
Calculate the missing length and bearing of Line EA.

Line	Length	bearing
AB	204	$87^{\circ} 30'$
BC	226	$20^{\circ} 20'$
CD	187	$280^{\circ} 0'$
DE	192	$210^{\circ} 50'$
EA	?	?

- (b) Explain temporary adjustment of theodolite. 6
- (c) Explain difficulties in chaining. 6
5. (a) Explain in detail various method of plane table surveying. 10
- (b) The length of the tracing arm between the tracing point and the hinge is 16.6cm. The distance of the anchor point from the hinge is 226cm. The dia of the rim of the wheel is 1.92cm. The wheel being placed between the hinge and the tracing point. The distance of the wheel from the hinge is 1.68cm find the area of one revolution of the measuring wheel and area of zero circle. 5
- (c) Explain computation of volume from spot levels. 5
6. (a) Define contour, contour gradient, horizontal equivalent and state various application of contours map in civil engineering. 10
- (b) Write a short note on spire test of a theodolite. 5
- (c) Write note on Profile levelling. 5
7. Write the short notes on any four : 20
- Adjustment of chain
  - Plane and geodetic surveying
  - Two point problem
  - Gales traverse table
  - Orientation of PTS.