Total No. of printed pages = 6

END SEMESTER EXAMINATION – 2019

Semester : 4th

Subject Code : CT-404

SURVEYING – II

Full Marks – 70

Time – Three hours

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

Instruction:

- *All* questions of both PART – A and PART – B are compulsory.

PART – A

Marks –25

1. Fill in the blanks : $1 \times 10 = 10$

   (a) The process of setting the instrument exactly over the station mark is called ——.

   (b) "The ratio of the perpendicular to the base is constant in similar isosceles triangle", is the principle followed in —— method of tacheometric survey.

[Turn over

(c) ——— table is the most advanced kind of plane table used in plane table survey.

(d) The instrument used for orientation of plane table by back sighting is called ———.

(e) An imaginary line joining the intersection of the cross-hairs to the optical centre of the objective and its continuation is called ———.

(f) When the vertical circle of a theodolite is to the right of the observer, the observation taken is called ———.

(g) ——— is used for giving minute movement of telescope thus helping in accurate bisection of object.

(h) The process of determining the differences of elevations of stations from observed vertical angles and known distances is called ———.

(i) The distance formula to compute the distances using tacheometer, for a horizontal line of sight is ———.

(j) Theodolite is levelled with the help of ———.

2. Write true or false : 1×10=10

(a) The working edge of an alidade is called fiducial edge.

(b) Chaining survey is preferred to tacheometric survey in undulating grounds.

(c) The multiplying constant of a tacheometer can be made zero by addition of anallactic lens.

(d) Alidade in plane table survey is used for levelling the instrument.

(e) The trunnion axis is the axis about which the telescope can be rotated in a vertical plane.

(f) Error in sighting and reading is a type of instrumental error.

(g) The three point problem in plane tabling is a method of traversing.

(h) Plumbing fork helps in centring of plane table.

(i) A theodolite can be used for measuring both vertical and horizontal angles.

(j) Repetition method in theodolite is used if, number of objects has a common vertex point.

3. Choose the correct answer: 1×5=5

(a) The method used for orientation of plane table with reference to three inaccessible points is called

(i) Radiation method

(ii) Intersection method

(iii) Resection method

(iv) Three point problem

(b) Parallax can be eliminated by

(i) cleaning the eye-piece

(ii) cleaning the objective

(iii) focussing the eye-piece and objective

(iv) changing the line of sight

(c) The telescope is said to be normal when the

(i) Bubble of the telescope is down and the face of the vertical circle is right

(ii) Bubble of the telescope is up and the face of the vertical circle is left

(iii) Bubble of the telescope is up and the face of the vertical circle is right

(iv) None of the above

(d) Stadia hairs are used in

(i) Plane table survey

(ii) Theodolite

(iii) Trigonometric levelling

(iv) Tacheometric survey

(e) The first temporary adjustment to be done after setting up the plane table at any station is

(i) Orientation

(ii) Centering and levelling

(iii) Levelling

(iv) Sighting.

PART – B

Marks – 45

4. Write down few advantages and disadvantages of plane table survey. 5

5. A tacheometer was kept at a station A and observations were made to a staff held vertically at B. The cross-hair readings were 1.835, 1.920 and 3.755. The vertical angle of depression was 10°20′. From the same instrument setting, the reading on a staff held at a B.M. of R.L. 100 m was 2.345 m. Find the horizontal distance AB and R.L. of point B. Take K=100 and C=0.2. 5

6. Write down the procedure to determine horizontal angle by repetition method. 5

7. Derive the formulae for height and distance of an object by trigonometrical levelling, when base of the object is inaccessible. Line of sights are at an angle of elevation and instrument axes are at different levels. 5

8. What is the need for orientation in plane table survey ? Explain orientation by back sighting in plane table survey. 5

9. A tacheometer was setup at an intermediate point on a traverse course PQ and the following observations were made on a vertically held staff :

Staff Station	Vertical Angle	Staff intercept	Axial hair readings
A	+8°40′	2.355	2.135
B	+6°20′	2.050	1.824

Compute the length AB and R.L. of B if the R.L. of A was 215.50 m. Take constants K = 100 and C = 0.3. 10

10. What is resection in plane table survey ? Write down the procedure of two point problem in plane table survey. 10