

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE
B.Tech Agriculture Winter 2019 - 20 Examination

Semester:1

Date: 3/12/2019

Subject Code: 20103113

Time: 10:30am to 12:30pm

Subject Name: Surveying & Levelling

Total Marks: 50

Instructions

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.**A. Fill in the blanks. (Each of 0.5 mark)****(05)**

1. The primary object of surveying is to prepare_____.
2. The area of irregular shapes can be measured using_____.
3. A well-conditioned triangle is a triangle whose angles lies between ___ to_____.
4. The function of the level tube in plane table survey is to _____.
5. In prismatic compass, the angles are obtained in the form of_____.
6. The surveying in which curvature of the earth is not considered is called _____.
7. The point of known elevation with respect to which measurements are done is called as _____.
8. The longest survey line in chain surveying is called as the_____.
9. The process of transferring the instrument point to the ground is called as _____.
10. In levelling, the first reading taken on the bench mark is known as _____.

B. Multiple choice type questions. (Each of 0.5 mark)**(10)**

1. Closed contours of decreasing values towards their centre, represent
 - a) a hill
 - b) a depression
 - c) a valley
 - d) steep slope
2. An imaginary line joining the points of equal elevation on the surface of the earth, represents
 - a) Contour
 - b) Level Line
 - c) Contour Gradient
 - d) None of the above
3. The method of surveying in which field observations and plotting proceed simultaneously
 - a) Plane Table Survey
 - b) Compass Survey
 - c) Chain Survey
 - d) Tachometric Survey
4. The main principle of surveying is to work from
 - a) part to whole
 - b) whole to part
 - c) higher to lower level
 - d) lower to higher level
5. The W.C.B. of a line is 45° , its Q.B. is
 - a) $N 40^\circ W$
 - b) $W 40^\circ N$
 - c) $N 45^\circ E$
 - d) $E 40^\circ N$
6. Offset are set by instrument
 - a) cross staff
 - b) optical square
 - c) Prism Square
 - d) All of the above
7. The working edge of the alidade is known as
 - a) Fiducial Edge
 - b) Working Edge
 - c) Parallel Edge
 - d) Straight Edge
8. If N is the number of sides in a closed traverse, then the sum of interior angles should be equal to
 - a) $(2N-4) \times 90^\circ$
 - b) $(2N+4) \times 90^\circ$
 - c) $(2N * 4) \times 90^\circ$
 - d) $(N * 4) \times 90^\circ$
9. The branch of surveying which deals with the location of army base camps, borders etc
 - a) Topographic Surveying
 - b) Mine Surveying
 - c) Hydrographic Surveying
 - d) Military Surveying
10. For the construction of highway (or railway)
 - a) Cross section is required
 - b) Both of them are required
 - c) Longitudinal Section is required
 - d) None of the above
11. In the trapezoidal formula, the line joining to the top ordinates is assumed to be
 - a) Straight
 - b) Circular
 - c) Parabolic
 - d) Curve
12. Cross hairs in surveying telescopes, are fitted

- a) in the object glass
b) at the optical centre of the eyepiece
c) in the eye piece
d) in front of the eye piece
13. Metric chains are generally available in
a) 10m and 20m length
b) 20m and 30m length
c) 20m and 25m length
d) 25m and 100m length
14. Plotting of inaccessible points on a plane table, is done by
a) Intersection
b) Radiation
c) Resection
d) Traversing
15. The surface of still water is
a) Level
b) Curved
c) Smooth
d) Horizontal
16. Back bearing of a line is equal to
a) F.B. + 90
b) F.B. + 180
c) F.B. - 180
d) F.B. - 90
17. To orient a plane table at a point with two inaccessible points, the method generally adopted, is
a) Intersection
b) Radiation
c) Resection
d) Two Point Problem
18. Number of links per metre length of a chain are
a) 2
b) 5
c) 4
d) 8
19. The method generally preferred to for contouring an undulating area, is
a) chain surveying
b) tachometric surveying
c) compass surveying
d) plane table survey
20. The constant vertical distance between two adjacent contours, is called
a) contour gradient
b) horizontal equivalent
c) horizontal interval
d) contour interval

Q.2 Do as Directed.

A. Define the following. (Any five out of seven)

(05)

1. For which range of area for which Geodetic Surveying is applied ?
2. Define Reconnaissance.
3. List out the various instruments used in plane table surveying.
4. How many links are present in a 20m chain?
5. What is the use of offset rods In Surveying?
6. Convert 140° to Q.B.
7. What is the principle of Compass Surveying?

B. Answer the following. (Any five out of seven)

(05)

1. Define Surveying.
2. List out the different types of chain used in surveying.
3. Write the formula for correction for temperature in tapes
4. What are the different methods of plotting contours?
5. Draw following features shown by contours: (i) hill (ii) pond
6. Write the formula for determining the height of a tower.
7. Write the full form of GPS.

Q.3 Write short notes. (Any five out of six)

(10)

1. Explain the different types of offsets?
2. Enlist the adjustments required in plane table survey.
3. Define Levelling.
4. Write two difference between prismatic compass and Surveyor's compass.
5. Explain the fundamental principles of surveying.
6. What are different methods for computation of the volume? Write the formula of one.

Q.4 Long Questions/Example (Attempt any three out of four)

(15)

1. The following offsets were taken at 20m intervals from a survey line to an irregular boundary line: 2.50, 4.40, 6.60, 5.50, 7.40, 8.70, 7.80, 6.50, 4.30, 3.20m. Calculate the area enclosed between the survey line, the irregular boundary line and the first and last offsets by (i.) Simpson's Rule and (ii.) Trapezoidal Rule.
2. Explain the various advantages and disadvantages of Plane Table survey.
3. A 30m chain was found to be 15cm too long after chaining a distance of 1500m. It was found to be 18cm too long at the end of one day's work after chaining the total distance of 3900m. Find the true distance if the chain was correct before commencement of the work.
4. Define Contour interval. Write down the characteristics of contours.