Survey 1 Question Bank

Question Set-1 Chapter 1 (Introduction to Surveying)

* Short Questions :- (2M)

1. Write the Principles of surveying?
2. Write the number of links in engineer's & Gunter's chain?
3. What is EDM?
4. Mention two objectives of surveying?
5. Define Geodetic Surveying.
6. Mention the types of instruments used for measuring distance in surveying
7. Write four uses of Surveying?
8. Write the classification of surveying based on instruments used?
9. What are the different types of tapes used in surveying?
10. Write the permissible error in steel band.

* Short - long Questions :- (5 Marks)

1. Write the difference between plane & geodetic survey?
2. Explain the different types of errors & mistakes in Surveying?
3. Write some of the adjustments made in chains?
4. Write the different corrections in chain surveying along with formulas?
5. The distance between two points measured with a 20 m chain was recorded as 327 m It was afterwards found that the chain was 3cm too long. What was the distance

between the points?

⑥ For a 20m chain was standardized on a flat ground at a temperature of 20°C. The chain was again used at a temperature of 30°C.

$\alpha = 11 \times 10^{-6}$ Per °C

Find the temperature correction?

* Long Questions: (10 Marks)

① A 30m steel tape was standardized at a temperature of 20°C & under a pull of 5kg. The tape was used in catenary at temperature of 25°C & a pull of 15kg. The cross sectional area of tape is 0.02 cm^2, weight per unit length is 22 g/m, ~~Youngs~~ $E = 2 \times 10^{+6}$ kg/cm^2, $\alpha = 11 \times 10^{-6}$ Per °C. Find the correct horizontal distance.

② A steel tape was exactly 20m long at 20°C when supported throughout its length under a pull of 5kg. A line measured with this tape under a pull of 16kg & at a mean temperature of 32°C, was found to be 680m long. Assuming the tape is supported at every 20m. Find the true length of the line.

Given

C/S area of tape = 0.03 cm^2

$E = 2.1 \times 10^{6}$ kg/cm^2

$\alpha = 11 \times 10^{-6}$ Per °C

Wt. of tape = 10 g/cc.

Question Set-2

CHAIN SURVEY

* Short Questions (2 marks)

(1) Define chain surveying.
(2) Motion different instruments need for setting offsets?
(3) Define Base line & Tie line.
(4) Motion instruments used in chain surveying.
(5) Write the principle of chain surveying?
(6) What is a clinometer
(7) What do you mean by an offset? What are types of offsets?
(8) Define Ranging.
(9) Write the different types of cross staff available?
(10) What do you mean by a well conditioned triangle?

* Short long Questions: (5 marks)

(1) Explain the process of indirect Ranging.
(2) Explain any two methods of setting perpendicular with chain & Tape.
(3) Explain the method of setting perpendicular & oblique offset. Motion the limit of offset.
(4) Write the importance points for selecting a survey station?
(5) Differentiate between compensating & cumulative error:

⑥ Explain the method of chain on sloping ground.

* Long Question: (10 Marks)

① To determine the width of a river, a chain line PQR was laid across it, the points Q & R being on two sides of river. From point S, 60m from Q on line QS which was at right angles to PQ the bearings of points R & P were found to be 280° & 190° respectively. If the distance PQ was 32m. determine the distance QR & draw the sketch.

② Explain the methods of chaining across mountain, Pond & River.

③ Write short notes on: (any two with neat sketch)

(i) Optical Square
(ii) Cross Staff
(iii) Line Ranger

Question Set-3

COMPASS SURVEYING

* Short Question: (2 Marks)

1. What is the principle of compass surveying?
2. What is local attraction?
3. What do you mean by azimuth?
4. Define magnetic declination.
5. What is dip of magnetic needle?
6. What is the angular check of a closed traverse?
7. Define true meridian & magnetic bearing.
8. The true bearing of a line CD is 210°45'. What will be its magnetic bearing, if the declination is 8°15' W?
9. What do you mean by Traverse? State the different types of Traverse.
10. What is irregular variation?

* Short long Questions: (5 Marks)

1. Differentiate between Prismatic & surveyor's Compass.
2. Convert the following Quadrantal bearing into whole circle bearing?

Line	QBs	Quadrant	Sol°	WCB.
AB	S 36°30'W			
BC	S43°30' E			
CD	N 26°45'E			
DE	N·40°15'W			

(3) Explain the adjustment of closing error in compass surveying?

(4) Explain the different methods of traversing.

(5) State the different types of personal, instrumental & Natural errors.

(6) Write the check for closing error in traverse?

* Long Questions:

(1) The following fore & back bearings were observed while traversing an area with a compass:

Line	FB	BB
PQ	S 37°30'E	N 37°30'W
QR	S 43°15'W	N 44°15'E
RS	N 73° W	S 72°15'E
ST	N 12°45'E	S 13°15'W
TP	N 60° E	S 59°15'W

Find the corrected bearing of the line.

(2) The following bearings are observed in a compass traverse. At which of these stations would local attraction be suspected? Find the corrected bearings of the lines.

Line	FB	BB
AB	305°	$125^\circ 30'$
BC	$75^\circ 30'$	$254^\circ 30'$
CD	$115^\circ 30'$	297°
DE	$165^\circ 30'$	$345^\circ 30'$
EA	225°	44°

(3). Write short notes on:

(a). Declination & its Variation.

(b). Grales Table.

(c). closing error.

Question Set 4

PLANE TABLE SURVEYING

* Short Questions: (2 Marks)

1. what is the principle of Plane table survey?
2. Name the different instruments used in plane table surveying.
3. what are the methods of plane tabling?
4. what are the diffent types of alidade.
5. what do you mean by two point problem?
6. what do you mean by orientation?
7. How are centring & levelling done in plane table?
8. what is a trough compass?
9. what do you meen by plumbing fork?
10. State few objectives of plane table surveying.

(5 Marks)

* Short-Long Questions

1. Differenciate between Radiation & Intersection?
2. Differenciate between Traversing & Resection?
3. Explain Two point problem. with neat sketch?
4. State the different errors ~~& precautio~~ in plate table surveying.
5. State the different instruments used in plane table surveying? Also explain their uses.

* Long Questions (10 Marks)

(1) Define Plane table surveying. State the principles of plane table surveying. Also mention the instruments used in plane table surveying & their purposes?

(2). Explain Tehad is three point problem, and elaborate with a neat sketch.

(3). Write short notes on: (any two)

(a). Resection
(b). Intersection
(c). Two point Problem.
(d). Radiation.
(e). Traversing.

Question Set 5

THEODOLITE SURVEYING

* Short Questions: (2 Marks)

1. What is a transit theodolite?
2. Write the function of theodolite?
3. What is a Latitude & Departure?
4. Write the sign convention of latitude & departure with reference to the directions?
5. What is a deflection angle?
6. What do you mean by parallax?
7. What is trianiting?
8. What do you mean by traverse?
9. Motion different methods to eliminate closing error.
10. What do you understand by line of collimation?

* Short long Questions: (5 marks)

1. How is the closing error in a traverse balanced?
2. How can we check the error in closed Traverse?
3. Explain method of Repetitions?
4. Write the essential parts of a transit theodolite?
5. What is changing face? Explain how it is done.

⑥ Differenciate between transit & non transit theodolite.

* Long Questions : (10 marks)

① Explain the temporary adjustments done in theodolite. Also explain fast needle method.

②. The lengths & bearings of the sides of a closed traverse are represented below along with the latitude & departures of known sides. Determine the bearing of AB & length of CD.

line	length (m)	Bearing	Latitude	Departure
AB	725	θ	–	–
BC	1060	N 62° 30' E	+498.45	+940.24
CD	L	N 37°36' E		
DE	945	S 55°18' W	-537.99	-776.92
EA	577.2	S 2°40' W	-576.63	-26.85

③ Write short notes on : (any two)

(a) Check in open traverse
(b) Errors in theodolite
(c) measurement of magnetic Bearing
(d) Prolongating a straight line with theodolite

Question Set 6

LEVELLING & CONTOURING

* Short Questions: (2 Marks)

1. Define Levelling and its purpose.
2. Define datum surface & bench mark.
3. What are the different types of levelling staffs?
4. Difference between line of collimation & Axis of telescope?
5. States the instruments used for levelling
6. Define change point. Also state when is it done.
7. Define height of instrument & Reduced level.
8. What do mean by contour.
9. State the methods of locating contour?
10. State the functions of contour maps?

* Short - Long Questions: (5 marks)

1. Differentiate between collimation method & Rise & fall method of levelling?
2. State the characteristics of contour lines?
3. Mention the temporary adjustment of level.
4. Explain Reciprocal levelling.
5. A level is set up at a point 150 m from A & 100 m, from B; the observed staff readings at A & B are 2.525 & 1.755

respectively. Find the true difference of level between A & B?

(6) State the different errors in levelling?

* Long Questions: (10 marks)

(1). The following readings are successively taken with a level: 0.355, 0.485, 0.625, 1.755, 1.895, 2.350, 1.780, 0.345, 0.685, 1.230 & 2.150. The instrument was shifted after the fourth & seventh readings. Prepare a level book & calculate the RL of different points. The RL. of the first point is 255.5 m.

(2). In testing a dumpy level, the following records were noted while undertaking Reciprocal levelling: RL of A = 250m.

Instrument at	Reading at	
	A	B
A	1.725	1.370
B	1.560	1.235

(a). The true RL of difference of level between A & B.

(b). The RL. of B.

(c). The combined correction for curvature & refraction. where the distance between A & B is 700 m.

(3). Write short notes on: (Any three):

(a). contour lines.
(b). methods of contour.
(c). Reciprocal levelling.
(d). Combined correction.
(e). Rise & Fall methods

Question Set 7

COMPUTATION OF AREA & VOLUME & MAP READING

* Short Questions: (2 marks)

1. What do you mean by cadastral map?
2. Define Grid square & Grid reference.
3. State the different types of cross sections
4. What is Prismoidal correction?
5. What do you mean by unique identification number of parcel?
6. Write the formula for curvature correction?
7. State different rule used for calculating area.
8. State different methods used for computing area from plans.
9. State different rule used for calculating the volume of traverse.
10. What do you understand from Positioning?

* Short - Long Questions: (5 marks)

1. Explain the positioning of control points.
2. Write a short note on cadastral map?
3. Define scale, Grid reference & grid square.

(4). Write few words about unique parcel identification number?

(5) Explain the method of area of squares used to compute the area of traverse?

(6) Explain Mid-Ordinate Rule?

* Long Questions (10 marks)

(1) The following offsets were taken from a chain line to an irregular boundary line at an interval of 10m.

0, 2.5, 3.5, 5, 4.6, 3.2, 0m.

Compute the area between the chain line the irregular boundary line & the end offsets by:

(i) mid-ordinate rule
(ii). average ordinate rule
(iii). Trapezoidal rule
(iv). Simpson's rule.

(2) An embankment of width 10m & side slope 1.5:1 is required to be made on a ground which is level in a direction transverse to the centre line. The central heights at 40m intervals are as follows:

0.9, 1.25, 2.15, 2.50, 1.85, 1.35 & 0.85,

Calculate the volume of earthwork according to:

(i) Trapezoidal formula
(ii). Prismoidal formula.

(3) Write short notes on:

(a). Computation of areas from plans

(b). Positioning of control points.

(c). difference between trapizoidal & simpsons formula.

(d). Prismoidal Corrections

(e), method of volume computation.