



Lwre.1203

Surveying and Leveling (1+2)

Marks: 50

Time:2 hours

I A Fill in the blanks

(10x1=10)

- 1 Survey dealing with determination of mean sea level is -----
2 Line of sight through the levelling instrument is called -----

B Choose the correct Answer

- 3 The length of Surveyor's chain is
a. 33' b. 66' c. 100' d. 10'
- 4 The least count of surveyor compass is
a. 1° b. $\left(\frac{1}{2}\right)^\circ$ c. 1' d. $\left(\frac{1}{2}\right)'$
- 5 The dip of a magnetic needle at poles is
a. 0° b. 45° c. 30° d. 90°
- 6 In an optical square the angle between horizon and index glass is
a. 45° b. 90° c. 180° d. 60°
- 7 Select the odd one
a. Speedometer b. Odometer c. Pedometer d. Passometer
- 8 Curvature correction for distance D and radius of earth R is
a. $\frac{D^2}{R}$ b. $\frac{D^2}{2R}$ c. $\frac{D^2}{7R}$ d. $\frac{D^2}{14R}$
- 9 Area of triangle, A with sides a, b, c and half the perimeter, S is given by formula
a. $A = \sqrt{S(S-a)(S-b)(S-c)}$ b. $A = [S(S-a)(S-b)(S-c)]^2$
c. $A = \sqrt{S(S+a)(S+b)(S+c)}$ d. $A = [S(S+a)(S+b)(S+c)]^2$
- 10 If fore bearing of line AB is 30° then back bearing of line BA is
a. 0° b. 30° c. 150° d. 210°

P.T.O

- 1 Local attraction
- 2 Theodolite Traversing
- 3 Ranging
- 4 Types of surveying
- 5 Profile levelling
- 6 Types of chains used in surveying
- 7 Trigonometric levelling

III Answer any FIVE of the following.

- 1 Obstacles in chaining.
- 2 Chaining on sloping ground.
- 3 Disadvantages and errors in plane tabling
- 4 Bench marks and their various types.
- 5 The areas within the contour lines at the site of a proposed reservoir and dam are as follow

| | | | | | | | |
|------------------------|----------------|-----|-----|------|------|-------|-----------------------|
| Contour (m) | 20 (bottom) | 22 | 24 | 26 | 28 | 30 | 32 (water surface) |
| Area (m ²) | 100 | 220 | 600 | 1800 | 4500 | 10000 | 25000 |

Find the volume of water in reservoir by trapezoidal formula

- 6 Object of surveying and classify surveying based on instruments
- 7 Determine the missing data

| Station | B.S | I.S | F.S | Rise | Fall | HI | RL |
|---------|------|------|------|------|------|-------|-------|
| 1 | ? | | | | | | |
| 2 | | 1.59 | | ? | | 23.18 | 20.00 |
| 3 | 0.28 | | ? | | 1.08 | ? | ? |
| 4 | ? | | 4.00 | | ? | 18.33 | ? |
| 5 | | ? | | | 2.19 | | ? |
| 6 | | ? | | ? | | | 15.72 |

IV Write an essay on any ONE of the following.

- 1 Compass Surveying
- 2 Contours - their characteristics and uses
