43 (ARC-2) 2·6

2018

SURVEYING AND LEVELLING

Paper : ARC-2·6

Full Marks : 100

Time : Three hours

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

Answer **all** questions.

1. Explain briefly : **(any five)**   2×5=10

    (a) Level surface

    (b) EDM

    (c) Mean Sea Level

    (d) RL

    (e) Swinging of Telescope

    (f) Line of Collimation.

2. Define Surveying. Explain the importance of surveying in architecture and write the phases of survey work. 15

3. Write the classification of different types of survey and explain each. Also write down the objectives of surveying. 15

4. What do you mean by true meridian and magnetic meridian ?

    The magnetic bearing of a line is 62°30′. What is the true bearing of the line if the magnetic declination is —

    (a) 3°45′W

    (b) 4°10′E 15

5. What do you mean by orientation of plane table ?

    The area of the plan of an old survey plotted to a scale of $1cm = 100m$ now measures $85 cm^2$ as worked out with the help of a planimeter. The plan is found to have shrunk so that a line originally $10cm$ long now measures $9·6cm$ only. Calculate the shunk scale and true area of the survey. 15

OR

Explain the procedure of Reciprocal Levelling with figure. Derive the expression from true difference of level between two points on opposite bank of river. 15

6. Write the characteristics of contours. Explain in brief the methods of contouring. Also describe the method of repetition for measurements of horizontal angles by Theodolite. 15

7. Define Levelling. What are its different types ? Explain each. 15

    The following consecutive readings were taken with a levelling instrument at intervals of 20m :

    2·375, 1·730, 0·615, 3·450, 2·835, 2·070, 1·835, 0·985, 0·435, 1·630, 2·255 and 3·630m.

    The instrument was shifted after fourth and eighth readings. The first reading was taken on a B.M. of R.L. 100·000m. Find the RLs of all the points. Apply usual checks.

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