

Total No. of printed pages = 4

43 (2) SULE

2012

SURVEYING AND LEVELLING

Full Marks – 100

Pass Marks – 40

Time – Three hours

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

Answer any *five* questions.

1. (i) What is surveying? Enlist a few uses of surveying. 10
- (ii) What are the principles of surveying? Explain. 10
2. (i) Explain the methods of chaining on an uneven or sloping ground. 10
- (ii) Elaborate on the direct methods of carrying out linear measurements. 10

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3. (i) How is surveying broadly classified? Explain each type. 10
- (ii) How is chaining carried out when both ends of the survey line are not intervisible due to high intervening ground between them? 10
4. (i) What is the principle of plane table surveying? Explain the methods of plane table surveying. 10
- (ii) Enlist the accessories used in plane table surveying. Explain the procedure of setting up a plane table over a station. 10
5. (i) What are the various types of levelling? Explain. 10
- (ii) In a levelling operation, following were the staff readings observed on a continuously sloping ground : 0.285, 0.639, 0.940, 1.660, 0.150, 0.380, 0.795, 2.005, 0.480, 0.790, 1.700.
- If the R. L. of the first station was 100m, find the R. L. of the remaining stations. 10

6. (i) What is a contour? What are its characteristics and uses? 10
- (ii) What are the advantages and disadvantages of plane table surveying? 10
7. (i) What are the fundamental lines of the telescope of a theodolite? What are the desired relations to be achieved between the fundamental lines? 10
- (ii) Explain the following terms : $2 \times 5 = 10$
- (a) Transiting
- (b) Swinging
- (c) Face left
- (d) Face right
- (e) Changing the face
8. (i) A line was measured by a 20m chain, which was accurate before starting the day's work. After chaining 900m, the chain was found to be 6 cm too long. After chaining a total distance of 1575m, the chain was found to be 14 cm too long. Find the true distance of the line. 10

- (ii) The distance between two stations was 1200m when measured with a 20m chain. The same distance when measured with a 30m chain was found to be 1195m. If the 20m chain was 5 cm too long, what was the error in the 30m chain ? 10