October 2018

<u>Time – Three hours</u>
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory.
Answer any FOUR questions from the remaining in each PART – A
and PART – B

(2) Answer division (a) or division (b) of each question in PART – C.

(3) Each question carries 2 marks in PART – A, 3 marks in Part – B
and 10 marks in PART – C.]

PART – A

1. Define surveying.

2. Define ranging.

3. Define compass surveying.

4. What is reduced bearing and whole circle bearing?

5. Define levelling.

6. What is the height of levelling instrument?

7. Define check levelling.

8. Define contour gradient.

PART – B

9. Write a short note on plane surveying.

10. Write a short note on: (i)Cross Staff (ii)Plumb bob (iii)Hammer.

11. Describe about magnetic declination.

12. What is local attraction?

13. Explain the types of levels.

14. Explain telescope type with sketches.

15. Discuss about reciprocal levelling.

16. Write a short note on GPS receivers.

[Turn over.....

PART – C

17. (a) To find out the width of a river, flowing east to west, two points P and Q are fixed along a bank 300 m apart. The bearing of a pole on the other bank of the river as observed from P and Q are 315°. Determine the width of river.

(Or)

(b) A steel tape 30 m long standardised at 10°C with a pull of 100 N is used to measure a base line. Find the correction per tape length. If at the time of measurement the temperature is 22°C, the pull exerted is 150 N, the weight of steel per meter cube equals 77.5 kN and weight of tape is 6.8 N. Take $E = 2.1 \times 10^5$ N/mm² and $\alpha = 12 \times 10^{-6}$ per °C

18. (a) The following bearings are taken in a running a compass traverse, compute the interior angles and apply usual check.

SIDE	FB	BB
AB	107°16′	287°15′
BC	22°00′	202°00′
CD	281°00′	101°30′
DE	189°15′	9°15′
EA	124°45′	304°45′

(Or)

(b) The following bearing are observed a running compass traverse. Find the included angle and apply usual check.

SIDE	FB	BB
AB	107°15′	287°15′
BC	22°00′	202°00′
CD	281°30′	101°30′
DE	189°15′	9°15′
EA	124°45′	304°45′

19. (a) Compare height of collimation method and rise and fall method.

(Or)

(b) Draw the dumpy level with neat sketch and explain the component parts.

20. (a) Explain the curvature and refraction. Briefly describe the procedure for CS plotting cross sectioning.

(Or)

(b) A and B are two points on the opposite banks of valley. The staff reading on A and B from one bank are 6.940 m and 5.270 m. The level is shifted to other bank and the readings are 8.160 m and 5.490 m. Find the true difference in level and RL of B, if the RL of A is 100.380 m.

21. (a) Describe the various characteristics of contour with neat sketches.

(Or)

(b) Write short notes on: (i)Elements of GPS (ii)Hand held GPS receivers (iii)Application of GPS in civil engineering.