# 345

## October 2016

*Time – Three hours*
*(Maximum Marks: 75)*

*[N.B: (1) Answer any FIVE questions in each PART - A and PART - B.*
*Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory.*
*(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. Write two objects of surveying.
2. Write the classifications of surveying.
3. Define whole bearing and reduced bearing.
4. Define local attraction.
5. What is permanent bench mark?
6. What is parallax?
7. What is curvature and refraction?
8. Define contour.

### PART – B

9. Briefly explain about tape correction and its necessity.
10. Write notes on subsidiary station.
11. Define the term true meridian, magnetic meridian.
12. Define open and closed traverse.
13. Describe about change point.
14. Explain about quick setting level and automatic level.
15. Explain any three natural errors in levelling.
16. Explain any three uses of contours.

PART – C

17. (a) (i) Explain the procedure of indirect ranging.
(ii) What are the errors in chaining? Explain the compensating error and cumulative error.

*(Or)*

(b) (i) Explain perpendicular offset and oblique offset.
(ii) Explain the classifications of surveying based on field of surveying.

18. (a) Draw the diagram of the prismatic compass. Explain how it is working in field.

*(Or)*

(b) The following bearings are observed in running a closed compass traverse. Calculate the included angle and correct them for observational errors.

| Line | FB | BB |
|---|---|---|
| AB | 191° 15′ | 10° 15′ |
| BC | 120° 45′ | 300° 45′ |
| CD | 349° 05′ | 169° 00′ |
| DE | 339° 35′ | 160° 40′ |
| EA | 296° 00′ | 115° 00′ |

19. (a) Solve the problem by height of collimation method and reduce the levels.

| Station | Back sight (m) | Intermediate sight (m) | Fore sight (m) | MI (or) HC (m) | RL(m) | Remarks |
|---|---|---|---|---|---|---|
| 1 | 1.430 | | | | 100.000 | $BM_1$ |
| 2 | | 2.015 | | | | Station1 |
| 3 | | 1.005 | | | | Station2 |
| 4 | 3.370 | | 0.400 | | | CP1 |
| 5 | | 2.975 | | | | Station3 |
| 6 | | 1.415 | | | | Station4 |
| 7 | | | 0.695 | | | $BM_2$ |

*(Or)*

(b) Draw the diagram of dumpy level and write its component parts and its functions.





20. (a) Derive the formula for effect of correction for curvature and refraction.

*(Or)*

(b) What are the permanent adjustments of level? How the line of collimation is adjusted by two peg test?

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

*(Or)*

(b) Explain about the elements of GPS with neat sketch.

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