1025

Code : 15CE21T

Register Number | | | | | | | |

II Semester Diploma Examination, April/May-2017

SURVEYING – I

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer any **six** questions from Part-**A**. Each question carries **5** marks.
(ii) Answer any **seven** questions from Part-**B**. Each question carries **10** marks.

PART – A

1. Define Surveying. State the objects of surveying. **5**

2. Draw a suitable conventional signs of Dam, Buildings, Benchmarks, Rocks, Cultivated land. **5**

3. State any five personnel errors in Prismatic compass survey. **5**

4. Compare prismatic compass with surveyor's compass. **5**

5. Explain the temporary adjustments of a Dumpy Level. **5**

6. Define the following terms :
Datum, Back sight, Foresight, Height of Instrument and Reduced level. **5**

7. What are the uses of taking Longitudinal section and cross section ? **5**

8. What are the different sources of errors in levelling. **5**

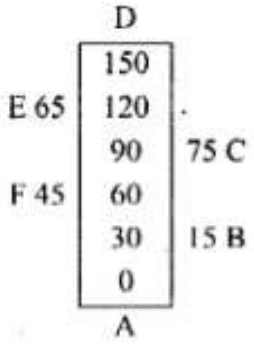
9. Explain the characteristics of contour with sketches. **5**

PART – B

10. (a) Explain Base line, Tie line, Check line. **4**

(b) Explain the Indirect method of Ranging a line with sketch. **6**

11. Plot the following details of a field and calculate the area, all measurements being taken in metres. **10**



12. (a) Compare : (1) Fore bearing and Back bearing.

(2) Closed traverse and open traverse. **6**

(b) Convert the following WCB to R.B.

(1) 22°30'

(2) 142°45'

(3) 203°15'

(4) 300°0' **4**

13. (a) Find the true bearing of a line AB, if the magnetic bearing and declination are 214°30' and 5°15' w respectively. **3**

(b) The following bearings were observed in running a closed traverse : **7**

Line	Fore bearing	Back bearing
AB	45°45'	226°10'
BC	96°55'	277°5'
CD	29°45'	209°10'
DE	324°48'	144°48'

At what station do you suspect local attraction ? Determine the corrected bearings.

14. (a) Compare rise and fall method with Height of Instrument Method. 4

(b) The following consecutive readings were taken with a dumpy level

3.864, 3.346, 2.932, 1.952, 0.854, 3.796, 2.639, 1.542, 1.934, 0.864, 0.665.

The level was shifted after the 5th and 8th readings. The first reading was taken on the bench mark of R.L. = 150.250 m. Calculate the reduce levels by H.I. method. Apply usual checks. Also find the difference in level between the first and the last points. 6

15. The following consecutive readings were taken with a level and 4 m levelling staff on a continuously sloping ground at an interval of 20 m.

0.385, 1.545, 2.825, 3.730, 0.455, 1.380, 2.005, 3.455, 0.625, 1.015, 2.550.

The R.L. of first point was 292.500 m, enter the above readings in a level field book. Calculate reduce levels by Rise and fall method. Also find the gradient of a line. 10

16. In running fly levels from a B.M. of R.L. 140.605, the following readings were obtained.

BS : 1.543, 2.694, 1.416, 2.923

FS : 0.574 1.236, 0.596

From last portion of the instrument six pegs at 20 m intervals are to be setout on a uniformly falling gradient of lin 50, the first peg is to have R.L of 144.000 m. Work out the staff readings required for setting the top of the pegs on the given gradient. 10

17. Four sight rails are to be erected over points A,B,C and D 50 m apart in a straight line. The invert level of sewer at D is 86.480 m. The sewer is on gradient of lin 120 rising from D to A. The R.L. of pegs on the surface of ground are 90.030, 89.850, 88.920 and 88.460 m respectively. The height of sight rail is at D is 1.62 m. Find the suitable height of the boning rod and height of sight rail above the surface pegs at A, B, C. 10

18. (a) List any four uses of contours. 4

(b) The areas within the contour lines at the site of reservoir and the face of the proposed dam are as follows :

Contour (M)	Area (M^2)
201	1200
202	12000
203	88800
204	152000
205	752800
206	1252000
207	1800000

Taking 201 as the bottom level and 207 as the top level. Calculate the capacity of reservoir by using Trapezoidal and Prismoidal formula. 6

19. As road at constant R.L of 180.000 m runs North to South, the ground East to West is level. The surface levels along the centre line of the road are as follows : 10

Chainage (m)	0	30	60	90	120	150	180
Level (m)	183.50	182.45	182.15	181.55	180.95	182.05	180.80

Compute the volume of cutting by trapezoidal and prismoidal rule, given that the width at formation level is 8 m and the side slopes 1.5 to 1.