

# 17310

**21819**

**3 Hours / 100 Marks**

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.  
(2) Figures to the right indicate full marks.  
(3) Assume suitable data, if necessary.  
(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

**1. a) Attempt any SIX of the following:**

**12**

- (i) State principle of surveying.
- (ii) Enlist uses of surveys.
- (iii) Define:
  - 1) Ranging
  - 2) Chaining
- (iv) State the principle of compass surveying.
- (v) State the function of reflecting mirror in prismatic compass.
- (vi) State suitability of plane table survey.
- (vii) Define levelling.
- (viii) Define:
  - 1) Change point
  - 2) Height of instrument.

P.T.O.

b) **Attempt any TWO of the following:****8**

- (i) Describe in brief primary classification of surveying.
- (ii) Draw conventional symbols for:
  - 1) Well
  - 2) Fort
  - 3) Lake
  - 4) Church
- (iii) Enlist method of ranging and explain any one in brief.

**2. Attempt any FOUR of the following:****16**

- a) Describe in brief process of chaining on sloping ground.
- b) Enlist the source of error in chaining and state the precautions to be taken against error.
- c) The length of line measured with a chain was found to be 250 m. Calculate the true length of line if:
  - (i) The length was measured with a 30 m chain and the chain was 10 cm too long and
  - (ii) The length of chain was 30 m in the beginning and 30.10 m at the end of work.
- d) Enlist the factors affecting on selection of survey station or survey line in chain survey.
- e) Describe in brief with neat sketch:
  - (i) Base line
  - (ii) Check line.
- f) Describe in brief obstacles in chaining.

- 3. Attempt any FOUR of the following:** **16**
- a) Draw sketch of optical square and state its principle.
  - b) Draw labelled sketch of prismatic compass.
  - c) Describe in brief errors in compass survey.
  - d) Differentiate between reduced bearing and whole circle bearing.
  - e) Convert following bearings from RB to WCB:
    - (i) N 65° 12' E
    - (ii) S 36° 48' E
    - (iii) S 38° 18' W
    - (iv) N 26° 32' W
  - f) State the causes of local attraction.
- 4. Attempt any FOUR of the following:** **16**
- a) Find the back bearing of following fore bearing.
    - (i) AB N 26° 14' E
    - (ii) BC S 78° 18' E
    - (iii) CD S 69° 9' N
    - (iv) DE N 32° 15' W.
  - b) Enlist different accessories of plane table survey with their use.
  - c) Describe in brief rejection method of plane table survey.
  - d) State the limitation of plane table survey.
  - e) Describe in brief errors in plane table survey.
  - f) Enlist the advantages of auto level.

5. Attempt any FOUR of the following:

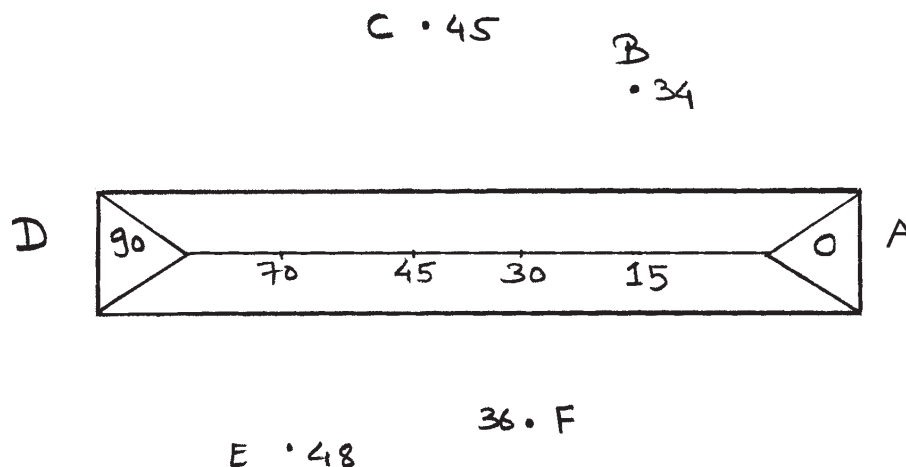
16

- Define bench mark and enlist the types of bench mark.
- Differentiate between simple and differential levelling with neat sketches.
- Describe in brief profile levelling.
- Explain reciprocal levelling with neat sketch.
- Differentiate between plane of collimation method and rise and fall method.
- Describe in brief errors in levelling.

6. Attempt any TWO of the following:

16

- Plot the following cross staff survey of field and calculate area.



- The bearing observed in traversing with compass at a place where local attraction was suspected are given below:

Line	FB	BB
AB	S 45° 30' E	N 45° 30' W
BC	S 60° 00' E	N 60° 40' W
CD	N 30° 20' E	S 05° 30' W
DA	S 85° 00' W	N 83° 30' E

at what station do you suspect local attraction? Find the corrected bearing of lines.

- c) The following is the page of level book where some reading were missing. Fill in the missing readings and calculate the reduced levels of all the points.

Station	BS	IS	FS	Rise (+)	Fall (-)	R.L	Remark
1	3.250					249.260	B.M
2	1.755	1	?		0.750		C.P
3		1.950					
4	?		1.920				C.P
5		2.340		1.500			
6		?		1.000			
7	1.850		2.185				C.P
8		1.575					
9		?					
10	?		1.895	1.650			C.P
11			1.350	0.750			