

19202

11819

2 Hours / 50 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. Attempt any SEVEN of the following :

7 × 2 = 14

- (a) State two objects of surveying.
- (b) Draw conventional symbols for
  - (i) Road in cutting
  - (ii) Road in embankment
- (c) Define plane survey and geodetic survey.
- (d) Define offset. State types of offsets.
- (e) Find quadrantal bearing of a line having WCB  $318^{\circ}30'$ .
- (f) State two causes of local attraction in surveying using prismatic compass.
- (g) Define true bearing and magnetic bearing.
- (h) List any two advantages of radiation method of plane table surveying.
- (i) State any two components of a polar planimeter with their functions.
- (j) Define base line and check line.

[1 of 4]

P.T.O.

**2. Attempt any FOUR of the following :****3 × 4 = 12**

- (a) State and explain principles of surveying.
- (b) State three engineering uses of surveying.
- (c) State the principle of optical square with neat sketch.
- (d) Explain the procedure to set out perpendicular with open cross-staff.
- (e) List any three obstacles in chain surveying and state methods to overcome them.
- (f) Describe the procedure to measure area of a field with chain and cross staff.

**3. Attempt any FOUR of the following :****3 × 4 = 12**

- (a) Define traverse and explain types of traverse with their suitability.
- (b) Explain the process of setting of prismatic compass.
- (c) Explain the procedure to detect local attraction and discuss any method to correct bearings affected by local attraction.
- (d) Find included angles in following cases :
  - (i) Fore bearing of AB =  $282^{\circ}15'$  and  
Fore bearing of BC =  $32^{\circ}30'$
  - (ii) Fore bearing of PQ =  $167^{\circ}30'$  and  
Fore bearing of QR =  $48^{\circ}30'$ .
- (e) State six different errors in compass surveying.
- (f) State procedure for graphical adjustment of a traverse by Bowditch rule in compass surveying.

4. Attempt any FOUR of the following :

3 × 4 = 12

- (a) State three advantages and three disadvantages of plane table surveying.
  - (b) Define orientation in plane table surveying. Explain any one method of orientation of plane table.
  - (c) State use of following in plane table surveying :
    - (i) Alidade
    - (ii) U-fork
    - (iii) Trough compass
  - (d) State procedure to measure area with a polar planimeter.
  - (e) Find the area of a figure traversed with a planimeter having anchor point outside the figure having final reading = 4.856, initial reading = 0.000, and multiplying constant = 100 and N = 0.
  - (f) Draw a neat labelled sketch of a digital planimeter.
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