



C-16-C-106

5017-A

BOARD DIPLOMA SUPPLEMENTARY (INSTANT) EXAMINATION, (C-16)

JUNE - 2019

DCE - FIRST YEAR EXAMINATION SURVEYING - I

Time : 3 Hours]

[Total Marks : 80

PART - A

2×15=30

- Instructions :**
- (1) Answer any 15 questions.
 - (2) Each question carries 2 marks.
 - (3) Answer should be brief and straight to the point and shall not exceed five simple sentences.

- 1 State any two purposes of surveying.
- 2 List out the classification based on method employed in surveying.
- 3 Mention the instruments used for taking angular measurements.
- 4 State the fundamental principles of survey.
- 5 State the equipments used in chain surveying.
- 6 Draw the conventional symbols for the following :
 - (a) Double railway line
 - (b) Metal road
- 7 Distinguish between perpendicular offset and oblique offset.
- 8 A certain field was measured with a 20 m chain and found to have an area of 60 m². It was afterwards found that the chain was 0.1 m too short. What is the true area of the field ?

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- 9 Define well-conditioned and ill-conditioned triangles.
- 10 What are the errors in chaining due to variation in temperature and pull.
- 11 State two situations in which compass survey is preferred.
- 12 Define the following terms :
 - (a) Meridian
 - (b) Bearing
- 13 The bearings of the lines are as follows. Find the included angles between them. Line AB, bearing $60^{\circ} 30'$, line BC, bearing $310^{\circ} 00'$.
- 14 The magnetic bearing of line AB = $214^{\circ} 30'$ and the magnetic declination is $5^{\circ} 45'$ West and what is the true bearing ?
- 15 Define the following terms :
 - (a) Reduced level
 - (b) Line of collimation.
- 16 State the component parts of dumpy level.
- 17 What is Bench mark ? Mention any two types of bench marks.
- 18 If a levelling staff is placed at a distance of 800 m from the instrument, find the –
 - (a) Correction for curvature (Cc)
 - (b) Correction for refraction (Cr)
- 19 Distinguish between simple levelling and differential levelling.
- 20 Mention any four types of instrumental error in levelling.

PART - B

10×5=50

- Instructions :**
- (1) Answer any **FIVE** questions.
 - (2) Each question carries **TEN** marks.
 - (3) Answer should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 21 (a) Distinguish between plane survey and geodetic survey.
 (b) Explain briefly about classification based on the object of survey.
- 22 A straight survey line ABDE intersects a building between B and D to overcome the obstacle perpendicular BC, 90 m long, sets out at B. From C, two lines CD and CE are set out at angles 45° and 60° respectively with CB. Find the lengths of CD and CE such that points D and E fall on the prolongation of line AB. Find the obstructed distance BD.
- 23 The following offsets were taken from a survey line to a curved boundary line :

Distance (in m)	0	5	10	15	20	30	40	60	80
Offset (in m)	2.50	3.80	4.60	5.20	6.10	4.70	5.80	3.90	2.20

Find the area between the survey line, curved boundary line and the first offset and last offsets by (a) Trapezoidal rule and (b) Simpson's rule.

- 24 A closed compass traverse PQRS was conducted and the following bearings were obtained :

Line	Fore bearing	Back bearing
PQ	$50^\circ 00'$	$230^\circ 00'$
QR	$170^\circ 00'$	$350^\circ 00'$
RS	$230^\circ 00'$	$50^\circ 00'$
SP	$310^\circ 00'$	$130^\circ 00'$

Calculate the interior angles of the traverse and apply check.

- 25 The following are the observed bearings of the lines of a traverse ABCD taken with a compass in a place where local attraction was suspected.

Line	FB	BB
AB	74° 20'	256° 00'
BC	107° 20'	286° 20'
CD	224° 50'	44° 50'
DA	306° 40'	126° 00'

Find the correct bearings of the lines by applying necessary correction for local attraction and tabulate the corrected bearings.

- 26 (a) Define Levelling. What are the different types of levels used in levelling ?
- (b) What are the points to be remembered while entering readings in a level field book ?

- 27 The following were the staff reading observed on a continuously sloping ground :

0.605, 1.105, 1.895, 2.300, 0.950, 1.340, 1.975, 0.760, 1.785, 0.905 and 1.235.

The RL of the first point was 120.650 m. Enter the above readings in a page of level book and calculate the RL of points by the rise and fall method. Apply usual checks.

- 28 While performing reciprocal levelling between two points A and B on opposite banks of a river, the level was set up near A and the staff readings on A and B were 2.155 and 3.565 m respectively. The level was then moved near to B and the respective staff readings on A and B were 1.965 and 3.265 m. Find the true difference in levels of A and B. Also find the R.L. of B, if the R.L. of A was 435.00 m.