UNIVERSITY PREVIOUS QUESTION PAPERS

R16

Code No: 133BU

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, May/June - 2019
SURVEYING
(Common to CE, CEE)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Define the term magnetic bearing. [2]
b) Explain how a chain is tested and adjusted in the field. [3]
c) Give the conventional contour representations for the following land features.
i) A gentle slope ii) A hill iii) A ravine iv) A depression. [2]
d) Define the terms: i) Line of collimation ii) Intermediate sight iii) Change point. [3]
e) Differentiate between closed and open traverses. [2]
f) Define the following terms in Transit Theodolite survey:
i) Horizontal axis ii) Transiting iii) Change of face. [3]
g) What are different methods of designation of a curve? [2]
h) Define Tacheometry. What are its fundamental objects? [3]
i) What is a Total Station? [2]
j) Write short note on satellite constellation. [3]

PART-B

(50 Marks)

2.a) Write briefly about comparison of chain and compass surveying.
b) Describe the various tape corrections with sketches. [5+5]

OR

3. The following bearings were taken in running a compass traverse.

Line	F.B	B.B
PQ	$124^0 30'$	$304^0 30'$
QR	$68^0 15'$	$246^0 0'$
RS	$310^0 30'$	$135^0 15'$
SP	$200^0 15'$	$17^0 45'$

At what stations do you suspect local attraction? Find the corrected bearings of the lines and also calculate the included angles. [10]

4.a) What are the relative merits of plane of collimation method and Rise and Fall method of booking?
b) Obtain an expression for the combined correction for curvature and refraction in plane surveying. [5+5]

OR

5. A rectangular plot ABCD forms the plane of a pit excavated for road work. E is point of intersection of the diagonals. Calculate the volume of the excavation in cubic meters from the following data:

point	A	B	C	D	E
Original level	45.2	49.8	51.2	47.2	52
Final level	38.6	39.8	42.6	40.8	42.5

Length of AB=50m and BC=80m. [10]

6.a) What are the different types of errors will occur in Theodolite work? How are they eliminated?

b) How is the closing error of a traverse adjusted graphically? [6+4]

OR

7. For the following traverse, find the length of DE so that A, E and F may be in the same straight line. [10]

Line	Length (m)	Reduced Bearing
AB	200	$S84^0 30' E$
BC	100	$N75^0 18' E$
CD	80	$N18^0 45' E$
DE	----	$N29^0 45' E$
EF	150	$N64^0 10' E$

8. Determine the gradient from a point P to another point Q from the following observations made with a tacheometer fitted with an anallactic lens. The constant of the instrument was 100 and the staff was held vertical. [10]

Instrument station	Staff station	Bearing	Vertical angle	Staff readings (m)
R	P	130^0	$+10^0 32'$	1.255,1.810,2.365
	Q	220^0	$+5^0 06'$	1.300,2.120,2.940

OR

9. Two straights AC and BC meet at an inaccessible point C. They are to be connected by a simple curve of radius 12 chains. Two points P and Q are selected on AC and BC respectively and the following measurements are made,
Angle APQ=160^0; Angle BQP=164^0; PQ=86m.
Chainage of P=71.546 chains.
Determine:
a) The deflection angle of the curve
b) Tangent length
c) Length of the curve
d) Chainage of the end points of the curve
Take 1 chain=20m. [10]

10. Write note on the different segments of GPS. [10]

OR

11. Discuss the different sources of errors which are encountered in a total station. [10]

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R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, April/May - 2018

SURVEYING

(Common to CE, CEE)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Explain about the principles of surveying. [2]

b) A 20m chain used for a survey was found to be 20.10m at the beginning and 20.30m at the end of the work. The area of the plan drawn to a scale of 1cm=8m was measured with the help of a planimeter and was found to be 32.56 sq.cm. Find the true area of the field? [3]

c) Mention the methods of leveling and explain any two in detail? [2]

d) Explain about the characteristics of contours. [3]

e) Distinguish between closed traverse and open traverse. [2]

f) Explain how you would measure vertical angle with a theodolite? [3]

g) What are different methods of setting of a curve? [2]

h) Explain about the principles of Tacheometery. [3]

i) What are the applications of Total station? [2]

j) What are the working principles of EDM instrument? [3]

PART-B

(50 Marks)

2.a) What are the different types of bearings?

b) The following bearings were observed while traversing with a compass

Line	F.B.	B.B
AB	$45^0 45'$	$226^0 10'$
BC	$96^0 55'$	$277^0 5'$
CD	$29^0 45'$	$209^0 10'$
DE	$324^0 48'$	$114^0 48'$

Mention which station was affected by local attraction and determine the corrected bearings? [5+5]

OR

3.a) Explain the method of testing and adjusting the chain.

b) How the chain can be standardized? How the adjustments will be made to the chain if it is found to be too long? [5+5]

4.a) What is meant by Zero circle?

b) The area of a figure was measured by a planimeter with the anchor point outside the figure and the tracing arm set to the natural scale (M=100 sq.cm). The initial reading was 8.628 and final reading was 1.238. The Zero mark of the disc passed the index mark once in the clockwise direction. Calculate the area of the figure. [5+5]

OR

5.a) How do you determine the quantity of earth work for a borrow pit?

b) Calculate the volume of earth work by Prismoidal formula in a road embankment with the following data in mts:

Chainage along the centre line	0	100	200	300	400
Ground level	201.70	202.90	202.40	204.70	206.90

Formation level at chainage 0 is 202.30m, top width is 2.00 m, side slopes are 2 to 1. The longitudinal gradient of the embankment is 1 in 100 rising. The ground is assumed to be level all across the longitudinal section. [5+5]

6.a) State and explain in brief about what errors are eliminated by repetition method.

b) How will you set out a horizontal angle by method of repetition? [5+5]

OR

7.a) Explain clearly, with the help of illustrations, how a traverse is balanced.

b) Distinguish between chain surveying and traverse surveying. [5+5]

8.a) Calculate the minimum radius for cubic parabola?

b) Explain what determines the nature of the curves. Classify them with examples? [5+5]

OR

9.a) What is tacheometer? What are different systems of tacheometric measurements?

b) What are advantages of a tacheometric surveying over other methods? [5+5]

10.a) What are the applications of GPS?

b) Explain about the electromagnetic wave theory. [5+5]

OR

11.a) What are the components of Global positioning system?

b) Explain about the different types of EDM instruments. [5+5]

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Code No: 133BU **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, November/December - 2017

SURVEYING

(Common to CE, CEE)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) What is the principle of surveying? Explain it in detail. [2]
b) What is local attraction? How will you determine it in a closed traverse? [3]
c) What do you understand by contour interval and on what factors does it depend? [2]
d) How a horizontal surface is different from a level surface? [3]
e) What are the different types of sources of errors in a Theodolite work? [2]
f) What are the advantages of Trigonometric leveling over direct leveling? [3]
g) What is meant by Degree of curve? Give relation with the radius of curve. [2]
h) Explain the functions of the following curves:
i) simple circular curve ii) reverse curve. [3]
i) What are the various applications of GPS in Civil Engineering field? [2]
j) What are the various types of EDM instruments? [3]

PART-B

(50 Marks)

2.a) Define surveying. Discuss briefly the classification of surveying based on:
i) Purpose ii) Instruments.
b) Differentiate between plane surveying and geodetic surveying. [6+4]

OR

3.a) What is the limit of accuracy in compass surveying?
b) Below are the bearings observed in a traverse survey conducted with a prismatic compass at a place where local attractions was suspected?

Line	F.B	B.B
PQ	$124^0 30'$	$304^0 30'$
QR	$68^0 15'$	$246^0 0'$
RS	$310^0 30'$	$135^0 15'$
SP	$200^0 15'$	$17^0 45'$

At what stations do you suspect local attraction? Find the corrected bearings of the lines and also calculate the included angles. [7+3]

4.a) The following staff readings were taken with a level. The instrument having been shifted after the 4th, 7th and 10th readings. The R.L of the starting point(B.M) is 100.00m. Enter the readings in the form of a level book page and reduce the level by the collimation method and apply the usual checks.
2.65, 3.74, 3.83, 5.27, 4.64, 0.38, 0.96, 1.64, 2.84, 3.48, 4.68 and 5.26.
b) Distinguish between Line of collimation and line of sight. [7+3]

OR

5.a) How do you determine the capacity of a reservoir using contours.

b) The following offsets were taken in meters from a chain line to a hedge

Distance	0	30	60	90	120	150	180
Offset	9.4	10.8	12.5	10.5	14.5	13.0	7.5

Compute the area included between the chain line, the hedge and end offset by the Simpson's rule. [3+7]

6. Determine the gradient from a point P to another point Q from the following observations made with a tacheometer fitted with an anallactic lens. The constant of the instrument was 100 and the staff was held vertical. [10]

Instrument station	Staff station	Bearing	Vertical angle	Staff readings (m)
R	P	130^0	$+10^0 32'$	1.255,1.810,2.365
	Q	220^0	$+5^0 06'$	1.300,2.120,2.940

OR

7.a) What are the different errors in theodolite work?

b) What are the limits of precision in theodolite traversing? [5+5]

8. A tacheometer was setup at station A and the following readings were obtained on a vertically held staff:

Station	Staff station	Vertical angle	Hair readings	Remarks
A	B.M	$-2^0 18'$	3.225,3.550,3.875	R.L of B.M =437.655m
	B	$+8^0 36'$	1.650,2.515,3.380	

Calculate the horizontal distance from A to B and the R.L of B if the constants of the instruments were 100 and 0.4. [10]

OR

9.a) What are the different methods of designation of a curve?

b) Draw a neat sketch of a circular curve and show its various elements thereon. [5+5]

10.a) Explain what are the latest advancements in total station techniques and their significance.

b) What are the uses of an electronic Total station? [6+4]

OR

11.a) Explain various segments of GPS.

b) Write down various applications of GPS. [5+5]

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R15

Code No: 123AM

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, May/June - 2019

SURVEYING

(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Define WCB and QCB. [2]
b) Differentiate intersection and radiation method. [3]
c) What are characteristics of a contour? [2]
d) Define rise and fall method. [3]
e) Differentiate slope and gradient. [2]
f) Mention different types of embankments sections. [3]
g) What is the least count of theodolite and how? [2]
h) Mention different parts of an electronic theodolite. [3]
i) Mention the name of different control stations. [2]
j) What are the objectives of GIS? [3]

PART-B

(50 Marks)

2. Mention different methods for calculating the area of a closed traverse by chain surveying. [10]

OR

3. The bearings given below were observed in running a closed traverse. Determine the correct bearings of the lines. [10]

Line	FB	BB
AB	$71^0\ 5'$	$250^0\ 20'$
BC	$110^0\ 20'$	$292^0\ 35'$
CD	$161^0\ 35'$	$341^0\ 45'$
DE	$220^0\ 50'$	$40^0\ 5'$
EA	$300^0\ 50'$	$121^0\ 10'$

4. Mention different methods of plotting contours and explain each of them. [10]

OR

5. Mention different methods of leveling along with their significance. [10]

6. A highway embankment 400 m long is 12 m wide at the formation level and has the side slope 2 to 1. The ground levels at every 100 m along the center line are given below. The formation level at zero chainages is 207.00 m, and the embankment has a rising gradient of 1 in 100. The ground is level across the center line. Calculate the volume of earth work. [10]

Distance (m)	0	100	200	300	400
RL (m)	204.8	206.2	207.5	207.2	208.3

OR

7. What are the different methods of computation of volume for one level and two level sections, without traverse slope? [10]

8. Discuss in detail the temporary and permanent adjustment in case of a theodolite. [10]

OR

9. Mention different types of triangulation survey in detail. [10]

10. Mention different types of errors in GPS surveying and explain. [10]

OR

11. Discuss the different components of GIS and explain each of them. [10]

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