R16

Code No: 133BU

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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