R17 Regulation *Subject code: 1P3AE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech II Year I Semester Supplementary Examinations, July 2022

SURVEYING

(CE)

Maximum Marks: 70 29-07-2022 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 Differentiate between plane and geodetic surveying.
2 Define: a) Main station b) Subsidiary station
3 Convert the whole circle bearing into reduced bearing: 50^o, 176^o, 210^o, 232^o, 150^o, 76^0, 310^o, 242^0.
4 Define and distinguish between magnetic dip and magnetic declination.
5 Define: Theodolite surveying. What are the uses of a theodolite?
6 Explain the Bowditch's rule in balancing the traverse.
7 Explain the principle of tacheomtery.
8 What are the types of curves?
9 Give short explanation about GPS and Total station
10 What are components of GPS and its uses.

Part-B

Answer All the following questions. (10M X 5=50Marks)

11 a) Define surveying. What are the principles of surveying?
b) Determine the value of included angles in a closed compass traverse ABCD conducted in clockwise direction, given the following fore bearings of the respective lines AB,BC,CD,DA are 40^o, 70^o, 210^o, 280^o. [5+5]

OR

12 a) Discuss briefly different types and sources of errors in surveying
b) A Line was measured by 20m chain which was accurate before starting the day's work. After chainage 900m the chain was found to be 6cm too long. After chaining a total distance of 1575m the chain was found to be 14cm too long. Find the true length of the line. [5+5]

13 The following consecutive readings were taken with a level and 5m leveling staff on continuously slopping ground at a common interval of 20m:
0.385;1.030;1.925;2.825;3.730;4.685;0.625;2.005;3.110;4.485. the reduced level of the first point was 208.125m. calculate the reduced level of the point by rise and fall method and height of Instrument method. [10]

OR

14 a) What is leveling and explain different methods of leveling.
b) What is bench mark? Explain different types of bench marks. [5+5]

15 The following observations were made for a closed traverse roung an obstacle. Due to obstructions, the lengths of lines DE and EA could not be measured. Find out the missing lengths. [10]

Line	Length(m)	bearing
AB	500	$98^{O}30'$
BC	620	$30^{O}20'$
CD	468	$298^{O}30'$
DE	?	$230^{O}00'$
EA	?	$150^{O}10'$

OR

16 a) Briefly explain about the measurement of horizontal angle by reiteration method. And repetition Method.
b) Explain the sources of errors in theodolite. [5+5]

17 Explain stadia method and tangential method in tacheometry. [10]

OR

18 A leveling staff is held vertical sight distance of 100m and 300m from the axis of a tacheometer and the staff intercepts for horizontal sights are 0.99m and 3.00 m, respectively. Find the constants of the instruments. The instrument is set up at a station A and the staff is held vertical at a point B. With the telescope inclined at an angle of depression of 10^{0} to the horizontal, the readings on the staff are 2.670, 1.835, 1.000 m. Calculate the RL of B and its horizontal distance from A. The HI is 1.42 m and RL is 450.5m. [10]

19 a) What are the types of EDM instruments and explain it?
b) Explain Electromagnetic wave theory. [5+5]

OR

20 a) What is GPS? How does Global Positioning system work?
b) Explain applications of GPS. [5+5]