FN
19-02-2021

R18 Regulation *Subject code:* 2P3AB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Regular/Supplementary Examinations, February 2021

Surveying & Geomatics

(Civil Department)

Maximum Marks: 70 Date: 19.02.2021 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 Define magnetic Dip in compass surveying

2 Draw the conventional signs for (i)Embankment (ii) cutting (iii) Road bridge (iv) Fence.

3 State Datum and its importance in surveying

4 Write a short notes on capacity of reservoir.

5 Define trigonometric leveling.

6 What is line of sight or line of collimation?

7 What is meant by Non-transit theodolite?

8 Write about point of intersection.

9 What is the main function of a total station?

10 What are the different components of GPS?

Part-B

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

11 a) Give the classification of surveying in brief based up on Instruments used. 5M

b) A 30m chain used for a survey was found to be 20.10 m at the beginning and 20.50 m at the end of the work. The area of the plan drawn to a scale of 1cm= 6m was measured with the help of a planimeter and was found to be 32.56 sq.cm find the true area of the field. 5M

OR

12 Below are the bearings observed in the traverse survey conducted with a prisamatic compass at a place where local attraction was suspected. 10M

Line	FB	BB
PQ	$124^0 30^1$	$304^0 30^1$
QR	$68^0 15^1$	$246^0 0^1$
RS	$310^0 30^1$	$135^0 15^1$
SP	$200^0 15^1$	$17^0 45^1$

13 a) Write the temporary adjustments of a level. 4M

b) The following ten readings were taken with a level, the instrument being shifted after the fifth and eighth readings: 1.315, 0.965, 1.345, 1.1.05, 0.875, 1.155, 1.305, 1.675, 1.345 and 1.875. The RL of the first turning point is 100.000. Find the reduced levels of the remaining points by the Rise and fall method. 6M

OR

14 a) A road has a formation width of 12 m and side slopes of 1 to 1 in cut and 2 to 1 in filling. The transverse slope of the ground is 6 to 1. If the depths of excavation at the centre lines of two sections 20 m apart are 0.50 m and 0.80 m respectively, find the volumes of cut and fill. 5M

b) What are contour? Explain uses and characteristics of contours. 5M

15 While traversing closed traverse ABCDE due to obstructions it was not possible to observe the bearings of lines DC and DE. Calculate the missing bearings. 10M

Line	Length(m)	Bearing
AB	172.62	$N9^0 30^1 E$
BC	148.59	$S69^0 12^1 E$
CD	---	$N58^0 38^1 E$
DE	---	$S06^0 41^1 E$
EA	336.63	$N87^0 23^1 W$

OR

16 a) Explain the steps involved in measuring horizontal angle with a theodolite. 5M

b) Explain the temporary adjustments of theodolite. 5M

17 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 1.02m and 2.50 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 2.760, 1.95, 1.200 m. Calculate the RL of B and its horizontal distance from A. The HI Is 1.42 m and RL is 350.5m. 10M

OR

18 a) Write a brief note on curves. 4M

b) **State the type of curves and explain the components of a simple curve.** **6M**

19 a) Write a brief note on Global Positioning System. 5M

b) Explain briefly how GPS works to determine the position coordinates. 5M

OR

20 a) What are the merits and demerits of total station? 5M

b) Write a brief notes on principle and working of EDM instrument? 5M