Code No: P18CET03

R18

HALL TICKET NUMBER

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### PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
### (AUTONOMOUS)
### II B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, JAN - 2023
### SURVEYING
### (CE Branch)

Time: 3 hours                                                                                          Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

### PART-A
### Answer all the questions in Part-A (5X2=10M)

| Q.No. | | Questions | Marks | CO | KL |
|---|---|---|---|---|---|
| 1 | a) | State the two fundamental principles upon which various survey methods of plane survey are based. | [2M] | 1 | |
| | b) | What is meant by magnetic declination. | [2M] | 2 | |
| | c) | State the temporary adjustments of a levelling instrument. | [2M] | 3 | |
| | d) | State the various systems of a tacheometric survey. | [2M] | 4 | |
| | e) | State the different methods that are used for setting of the simple circular curve. | [2M] | 5 | |

### PART-B
### Answer One Question from each UNIT (5X10=50M)

| Q.No. | | Questions | Marks | CO | KL |
|---|---|---|---|---|---|
| | | UNIT-I | | | |
| 2. | | Briefly explain the classification of surveying. | [10M] | 1 | |
| | | OR | | | |
| 3. | a) | What are the advantages and disadvantages of plane table surveying | [5M] | 1 | |
| | b) | What are the different methods of plane tabling, explain any one of them in detail. | [5M] | 1 | |
| | | UNIT-II | | | |
| 4. | | Draw the neat sketch of a prismatic compass and name the component parts of it. | [10M] | 2 | |
| | | OR | | | |
| 5. | | Calculate the interior angle of the closed traverse from the bearings of the lines given below. | [10M] | 2 | |

| Line | AB | BC | CD | DE | EF | FA |
|---|---|---|---|---|---|---|
| Bearing | N60$^0$25'E | S85$^0$30'E | S25$^0$45'E | S64$^0$30'W | N82$^0$45'W | N28$^0$14'W |

| Q.No. | | Questions | Marks | CO | KL |
|---|---|---|---|---|---|
| | | UNIT-III | | | |
| 6. | a) | What is meant by a bench mark, what are the different types of it and where they are used? | [5M] | 3 | |
| | b) | What are the different sources of errors in levelling and how they are eliminated? | [5M] | 3 | |
| | | OR | | | |

| 7. | | The following staff readings were observed successively with a level, the instrument having been shifted after third, fifth and eighth readings. The readings are 2.225, 1.525, 0.925, 2.090, 2.885, 1.260, 0.525, 1.095, 1.045 and 2.085 Enter the above readings in a table and calculate the reduced levels of the points, if the first reading was taken with a levelling staff held on a bench mark with reduced level 245.325 m | [10M] | 3 | |
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### UNIT-IV

| 8. | | The elevation of a point P is to be determined by observations from two different stations A and B of a tacheometric survey. The staff was held vertically upon the point and the instrument is fixed with an anallactic lens, the constant of the instrument being 100. Compute the elevation of the point P from the following data. | [10M] | 4 | |
|---|---|---|---|---|---|

| Instrument at | Height of the instrument axis | Staff station | Vertical angle | Staff readings | Reduced level of Bench mark |
|---|---|---|---|---|---|
| A | 1.420 | P | $+ 2^0 24'$ | 1.230, 2.055, 2.880 | 77.750 |
| B | 1.400 | P | $- 3^0 36'$ | 0.785, 1.800, 2.815 | 97.135 |

### OR

| 9. | | The following are the perpendicular offsets were taken at 10m intervals from a survey line to an irregular boundary line. 2.25, 7.30, 5.50, 8.82, 9.45, 6.25, 8.21,4.67 and 3.31 Calculate the area enclosed between the survey line, the irregular boundary line and the first and last offsets by Simpson's rule. | [10M] | 4 | |
|---|---|---|---|---|---|

### UNIT-V

| 10. | | Calculate the elements of a simple circular curve form the following data.<br>Radius of the curve = 300m<br>Angle of intersection = $110^0$<br>Chainage of point of intersection = 820.500m | [10M] | 5 | |
|---|---|---|---|---|---|

### OR

| 11. | | What are the precautions that you will consider while using a total station. | [10M] | 5 | |
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