JHARKHAND Rai University
RANCHI

**PRACTICE SET**

**End Semester Examination, Spring- 2026**

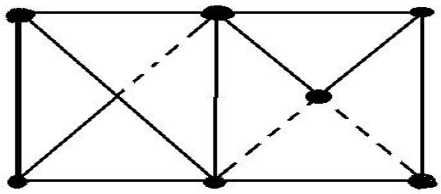
**Program: B.TECH**
**Semester: IV**
**Course: Mine Surveying & Geospatial Technology**
**Course Code: 8PCCMiE207**

| Course Outcomes | Description |
|---|---|
| CO1 | Illustrate & apply various survey instruments like Total Station, Theodolite, EDM used in general and mine survey, through practical and demonstrations. |
| CO2 | Apply knowledge of surveying for understanding, formulating and solving correlation surveying problems & slope surveying. |
| CO3 | Demonstrate GPS used in general mine survey in opencast mine. |
| CO4 | Analyse the application of IT in surveying & GIS. |

## UNIT I (CO1)

### Section A (Each carries 10 marks)

1. Explain the operations in triangulation survey and explain the operations in triangulation survey. **(UNDERSTAND) CO 1**
2. Explain the purpose of triangulation survey also Briefly explain First order or primary triangulation. **(UNDERSTAND) CO 1**
3. Discuss about strength of figure in triangulation system. Evaluate the value of C and (D-C)/D for the net shown in the figure given below. The heavy lines are bases of known length. Directions are not observed where lines are dotted. **(EVALUATE) CO 1**



4. Compare the advantages of using a quadrilateral over a simple triangle in a triangulation network. **(UNDERSTAND) CO 1**

5. Describe the Triangulation surveying and the classification of triangulation with its specification and also describe the application. **(ANALYZE) CO 1**

## Section B (Each carries 20 marks)

6. Explain advantages and disadvantages of triangulation system and differentiate between primary triangulation, secondary triangulation method and Tertiary triangulation with its specifications**. (APPLY) CO 1**

7. Evaluate the value of C and (D-C)/D for the net shown in the figure 1,2,3 given below. The heavy lines are bases of known length. Directions are not observed where lines are dotted. **(EVALUATE) CO 1**

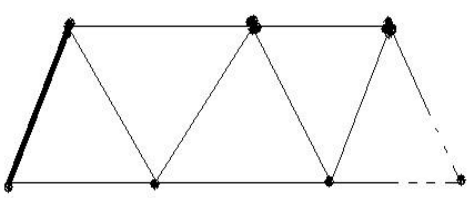


figure -1

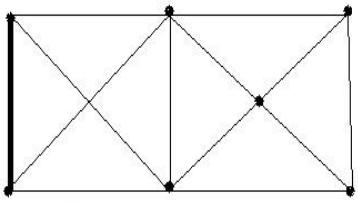


figure-2

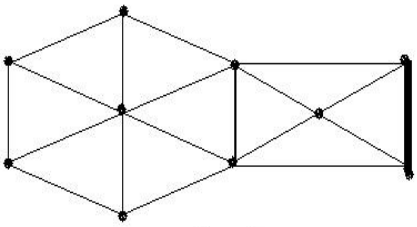


figure-3

## UNIT II (CO2)

## Section A (Each carries 10 marks)

8. A) Discuss correlation survey.
   B) Explain the purpose of correlation survey.
   C) List out the Methods of Correlation survey explain any one in brief. **(UNDERSTAND) CO 2**
9. Explain Weissbach triangle method of correlation with sketch. **(UNDERSTAND) CO 2**
10. Explain, How can we do correlation using Weiss quadrilateral method?. **(UNDERSTAND) CO 2**
11. There are various type of contour line. Explain the Different Types of Contour Lines Used in Mapping? **(Apply) CO 2**

## Section B (Each carries 20 marks)

12. Contouring is required in map. Could you explain about Contouring. Describe Contouring. Explain the Characteristics of Contours with Necessary Sketches. **(Apply) CO 2**

## UNIT III (CO 3)

## Section A (Each carries 10 marks)

13. Explain the workings of EMR in the process of Remote sensing and Differentiate between Active and passive remote sensing. **UNDERSTAND CO3**

14. Describe 'GIS', objectives of GIS and Explain in detail the components of GIS. **UNDERSTAND CO3**

15. Can you elaborate about electro-magnetic spectrum? State the wave length regions, along with their uses, for remote sensing applications. **ANALYZE CO3**

16. Construct Spectral Reflectance of soil & vegetation & water with proper graph. **APPLY CO3**

## Section B (Each carries 20 marks)

17. Explain the Application of remote sensing in detail. (**UNDERSTAND) CO3**
18. Explain the application areas of GIS. (**EVALUATE) CO3**

## UNIT IV

## Section A (Each carries 10 marks)

19. Explain stereopairs? list out the types of stereopairs. Also mention the application of stereopairs. (**UNDERSTAND) CO4.**
20. Describe relief displacement? Write the factors on which the relief displacement is dependent with proper equation. (**UNDERSTAND) CO4**
21. Define the following: - a) Camera axis b) Picture plane c) Image plane d) Flying height e) Axis of tilt. (**REMEMBER) CO4**
22. Derive the expression of scale, if ground points are on same plane with zero height of ground above mean sea level and if it is at "h" distance from mean sea level. (**APPLY) CO4**
23. Enumerate the major advantages & disadvantages of GPS. **(APPLY) CO4**
24. Elaborate the major applications of GPS. **(UNDERSTAND) CO4**
25. Obtain the equation for the scale of vertical photograph. A vertical photograph was taken from a height of 1780 m above the MSL. Determine the scale of photograph of an area at average elevation of 265 m above the MSL. Focal length of the camera is given as 20 cm. (**EVALUATE) (CO2)**

## Section B (Each carries 20 marks)

26. Arial photograph was taken with a camera of focal length 180mm, the average elevation of ground in the photograph was 160m. Find a) The scale of map, if flying height 2500m. b) The flying height required to have a scale of 1in 6000. (**EVALUATE) CO4**
27. Derive the equation for the scale of horizontal photograph. Tower of height 152 m is imaged as 5 mm in horizontal photogrammetry. Determine the distance of tower from camera, if the focal length of camera is 196 mm. (**EVALUATE) CO4**
28. A line 2350m lying at an elevation of 500m. Measure 10.5cm on a vertical photograph. The focal length of the camera is used is 20cm. Determine the scale of photograph for an area having an elevation of 1200m. (**EVALUATE) CO4**

**Summary Sheet:**

**CO Wise**

| CO | Q. No | Marks |
|---|---|---|
| CO1 | 1,2,3,4,5,6,7 | 90 |
| CO2 | 8,9,10,11,12 | 70 |
| CO3 | 13,14,15,16,17,18, | 80 |
| CO4 | 19,20,2122,23,24,25,26,27,28 | 130 |
| **Total** | | **370** |

**UNIT Wise**

| Unit | Q. No | Marks |
|---|---|---|
| 1 | 1,2,3,4,5,6,7 | 90 |
| 2 | 8,9,10,11,12 | 70 |
| 3 | 13,14,15,16,17,18, | 80 |
| 4 | 19,20,2122,23,24,25,26,27,28 | 130 |
| **Total** | | **370** |

**Blooms Taxonomy Level (BTL) Wise**

| BTL | Q. No | Marks |
|---|---|---|
| LOT | 1,2,4,8,9,10,11,12,13,14,17,19,20,24 | 180 |
| HOT | 3,5,6,7,15,16,18,21,22,23,24,25,26,27,28 | 190 |
| **Total** | | **370** |

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**Disclaimer: -** This is a Practice set. The Question in End term examination may differ from the Practice set. This Practice set is meant for practice only.