JHARKHAND Rai University
RANCHI

PRACTICE TEST
End Semester Examination, December, 2025

Program: B. Tech
Subject: Basic Mine Surveying
Semester: III
Subject Code: 8PCCMiE203

Course Outcome:

On the completion of the Course, the students will be able to:

Course Outcomes	Description
CO1	Enhance the technical knowledge on linear measurements by chain surveying & tape surveying, compass surveying and plane table surveying.
CO2	Identify and evaluate the engineering problems in levelling and angular measurements with various surveying tools likes theodolite, levels etc.
CO3	Apply the use of Total Students & EDM in field and concept of contour.
CO4	Understand the application of plan table survey and modern engineering tools necessary for mine surveying.

UNIT-1

Section A -Question of 5 marks

1. List out the instruments used in chain surveying. (CO1) REMEMBER.
2. Classify surveying on the basis of Land and instruments used (CO1) UNDERSTAND.
3. Define Surveying and explain the principles of surveying? (CO1) REMEMBER.
4. Compare the different kinds of chains and tapes used for linear measurements (CO1) UNDERSTAND.
5. Explain the followings: - a) Base line b) Check line c) Main line d) Tie line e) Offsets (CO1) UNDERSTAND.
6. Explain true bearing and the concept of magnetic bearing. (CO1) UNDERSTAND
7. Explain compass surveying. Name the instruments used for measurement of directions. (CO1) UNDERSTAND
8. How do you define bearing? Explain Whole circle bearing and reduced bearing system. (CO1) REMEMBER

Section B- Question of 10 marks

9. Classify the different types of chains used in surveying? Draw neat diagram of metric chain. (CO1) UNDERSTAND
10. Explain the term representative factor (R.F) and Calculate the RF of the given scale:

a. 1cm = 80m
b. 1cm = 50m (CO1) EVALUATE

11. Explain obstruction in chaining with example. what is slope correction obtain the relation? (CO1) UNDERSTAND
12. Explain all the corrections that are applied when measuring with tape and chain. (CO1) UNDERSTAND
13. a) Convert these to Whole Circle Bearing to Reduced bearing; -
    i) 244°30' ii) 104°20'iii) 48°50' iv) 329°15'
    b) Convert these to Reduced bearing to Whole Circle Bearing; -
    i)N44W ii) S74W iii) N48E iv) S88E (CO1) EVALUATE

Section C -Question of 20 marks

14. a) The length of a line measured with a 20-meter chain was found to be 250 meters. Calculate the true length of the line if the chain was 10cm too long.
    b) A 100m steel tape measures 99.8m at 25°C.Standard temperature is 20°C. Expansion coefficient is 0.000012/°C. Tension applied is 50N, 5N less than standard. Elasticity modulus is 200 G Pa. Cross-sectional area is 0.01m^2? Calculate the corrected length. (CO1) EVALUATE

15. The following are the observed bearings of the lines of a traverse ABCDEA with a compass in a place where local attraction was suspected.

LINE	FB	BB
AB	191°45'	13°0'
BC	39°30'	222°30'
CD	22°15'	200°30'
DE	242°45'	62°45'
EA	330°15'	147°45

Find the correct bearings of the lines. (CO1) EVALUATE

Unit – II

Section A- Question of 5 marks

16. Define Traverse survey. Explain types of traverses. (CO2) REMEMBER
17. Write the different methods of measuring horizontal angle through theodolite? (CO2) UNDERSTAND
18. Define the following: - a) Reduce level b) Benchmark c) Fore sight-reading d) Back sight reading e) Intermediate sight reading. (CO2) REMEMBER
19. Describe Reciprocal surveying? (CO2) UNDERSTAND
20. Explain the bench mark and its types. (CO2) UNDERSTAND

Section B- Question of 10 Marks

21. Define the following: - a) Bearing b) Meridian c) True Bearing d) Magnetic Bearing e) Fore Bearing and Back Bearing. (CO2) REMEMBER

22. Explain step by step procedure of temporary adjustment of theodolite. (CO2) UNDERSTAND
23. Explain the terms in brief: - a) Transiting of telescope b) Swinging c) centering d) Face left e) Changing of face. (CO2) UNDERSTAND.

Section C- Question of 20 Marks

24. The following readings were taken with a dumpy level. The first reading was taken on benchmark of 820.765m, the readings obtained being as shown below. Obtain the R.L and height of instrument, Use Hight of Instrument method. (CO2) EVALUATE

BS	IS	FS	RL	REMARKS
0.794			820.765	BM
	1.543			
	2.796			
0.854		2.916		CP 1
	0.592			
	0.482			
1.432		0.151		CP 2
	0.896			
		2.035		

25. The following staff readings were observed successively with a level. the instrument having been moved after third, sixth and eighth readings: 2.228 ; 1.606 ; 0.988; 2.090: 2.864; 1.262; 0.602; 1.982; 1.044 ; 2.684 meters. Enter the above readings in a page of a level book and calculate the R.L. of points if the first reading was taken with a staff held on a bench mark of 432.384 m. Use Rise and fall method. (CO2) EVALUATE

Unit III

Section A- Questions of 5 Marks

26. Describe the device “Total station”? Explain principal components of Total station (CO3) UNDERSTAND
27. List the Advantages and limitations of Total station (CO3) REMEMBER
28. Explain the terms in brief: Contour line, Contour interval and horizontal equivalent. Also write the characteristics of contour line. (CO3) UDERSTAND
29. Define vertical cliff and overhanging cliff. (CO3) REMEMBER

Section B -Questions of 10 Marks

30. Explain Local Attraction. Discuss the process of removal of Local attraction from station. (CO4) UNDERSTAND
31. Extract the Applications and modern developments of the Total Station Instrument. (CO3) UNDERSTAND

Section C- Questions of 20 Marks

32. The following are the fore and back bearings of the sides of a closed traverse ABCDE:

SIDE	FB	BB
AB	97°15’	277°15’
BC	12°0’	192°0’
CD	271°30’	91°30’
DE	189°15’	9°15’
EA	124°45’	304°45’

Calculate the interior angles of the traverse. (CO3) EVALUATE

33. The following bearings were observed in traversing, with a compass, an area where local attraction was suspected. Find the amounts of local attraction at different stations, the correct bearings of lines and the included angles. Also draw a sketch of the plot if AB = 100 m. BC = 100 m and CD = 50m and show in it all the included angles. (CO3) EVALUATE

LINE	FB	BB
AB	68°15'	248°15'
BC	148°45'	326°15'
CD	224°30'	46°00'
DE	217°15'	38°15'
EA	327°45'	147°45’

UNIT 4

Section A- Questions of 5 Marks

34. List the accessories used in the plane table surveying? How plain alidade is different from telescopic alidade? (CO4) REMEMBER

35. Explain plane table surveying? What is the principle of plane table surveying? (CO4) UNDERSTAND.

Section B- Question of 10 marks

36. Explain the different components of theodolite also draw the fundamental lines in theodolite. (CO4) UNDERSTAND

37. What do you understand from the term orientation in plane table survey? Explain the methods of orientation with a neat sketch. (CO4) UNDERSTAND

38. List out the methods of plane table survey? Explain any one of them. (CO4) UNDERSTAND

39. A) Illustrate Benchmark and explain its use in Surveying? What are the Different types of Benchmarks?

B) Deduce the relation between fore bearing and back bearing? Explain with an example. (CO4) APPLY

Section C -Question of 20 marks

40. A steel tape was exactly 30m length is standardized at temperature 25°C at a pull of 20 kg. If the measurement of one tape length is taken at 39°C at a pull of 36kg. then find the combined correction due to temperature, pull and sag using following data; - E= 2.1 X10^6 Kg/cm^2, A=0.3cm^2, w=30gm/m, Coefficient of thermal expansion =12x10^6/°C. (CO4) EVALUATE

Summary Sheet

CO Wise

CO	Q. No	Marks
CO1	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	140
CO2	16,17,18,19,20,21,22,23,24,25	95
CO3	26,27,28,29,30,32,33	80
CO4	34,35,36,37,38,39,40	80
Total		**395**

Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	140
Unit 2	16,17,18,19,20,21,22,23,24,25	95
Unit 3	26,27,28,29,30,32,33	80
Unit 4	34,35,36,37,38,39,40	80
Total		**395**

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1,2,3,4,5,6,7,8,9,11,12 ,16,17,18,19,20,21,22,23 26,27,28,29,30,31,34,35,36,37,38	205
HOT	10,13,14,15,24,25,32,33,39,40	190
Total		**395**

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