

**PRACTICE SET**  
**End Semester Examination, December, 2025**

**Program: Diploma (Mining)**  
**Semester: III**  
**Subject: Mine Surveying I**  
**Subject Code: 8DPCCMiE202**

---

**UNIT I**

**Section A (5 marks)**

1. Define Surveying and explain the principles of surveying?
2. Define the followings: - a) Base line b) Check line c) Main line d) Tie line e) Offsets.
3. What are the instruments used in chain surveying, Explain in brief with figure.
4. Describe different kinds of chains and tapes used for linear measurements.
5. Explain the term representative factor (R.F) and Calculate the RF of the given scale:  
a) 1cm = 80m b) 1cm=50m

**Section B (10 marks)**

6. Explain obstruction in chaining with example. what is slope correction obtain the relation?
7. Classify the different types of chains used in surveying? Draw neat diagram of metric chain.
8. What is scale? Write the representations of scale and explain types of scales.

**Section C (20 marks)**

9. A steel tape was exactly 20m length is standardized at temperature 30°C at a pull of 50 kg. If the measurement of one tape length is taken at 45°C at a pull of 40kg. then find the combined correction due to temperature, pull and sag using following data;  $-E= 2.1 \times 10^6$  Kg/cm<sup>2</sup>,  $A=0.3\text{cm}^2$ ,  $w=30\text{gm/m}$ , Coefficient of thermal expansion =  $12 \times 10^{-6}/^\circ\text{C}$ .
10. 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  $0.000012/^\circ\text{C}$ . Tension applied is 50N, 5N less than standard. Elasticity modulus is 200 GPa. Cross-sectional area is  $0.01\text{m}^2$ ? Calculate the corrected length.

**UNIT II**

**Section A (5 marks)**

11. What is bearing?
12. Explain Magnetic Bearing?
13. What is the relation and difference between FB & BB?
14. What is the difference between Whole circle bearing and Quadrantal Bearing?

15. Explain compass surveying. Name the instruments used for measurement of directions
16. What do you understand by Reconnaissance survey?
17. Explain the difference between Angles and Bearings.

**Section B (10 marks)**

18. What is the difference between direct and indirect Ranging?
19. Define the following: - a) Bearing b) Meridian c) True Bearing d) Magnetic Bearing e) fore Bearing and back Bearing.
20. Convert to Whole Circle Bearing to Reduced bearing and Reduced bearing to Whole Circle Bearing for the given following values; -
  - i)  $244^{\circ}30'$  ii)  $104^{\circ}20'$  iii)  $48^{\circ}50'$  iv)  $329^{\circ}15'$  v)  $181^{\circ}0'$ .
  - ii) i) N44W ii) S74W iii) N48E iv) S88E v) N64E.
21. Differentiate between prismatic and surveyor compass.
22. Find the angle between the lines AB and BC if their respective bearing are: -
  - a)  $140^{\circ}15'$  and  $50^{\circ}45'$       b)  $65^{\circ}45'$  and  $117^{\circ}30'$

**Section C (20 marks)**

23. a) Explain Benchmark and its use in Surveying. Also Elaborate Different types of Benchmarks used in surveying.  
b) Explain Local Attraction. Discuss the process of removal of Local attraction from station.
24. 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	$191^{\circ}45'$	$13^{\circ}0'$
BC	$39^{\circ}30'$	$222^{\circ}30'$
CD	$22^{\circ}15'$	$200^{\circ}30'$
DE	$242^{\circ}45'$	$62^{\circ}45'$

EA	330°15'	147°45'

Find the correct bearings of the lines.

### UNIT III

#### Section A (5 marks)

25. What is magnetic meridian and true meridian?
26. Explain Magnetic Declination?
27. What is Traversing and explain their types?
28. Back Bearings of the following lines are given. Find the fore Bearings?
  - a) Back bearing of AB= 58° 30'
  - b) Back bearing of BC=140°45'
  - c) Back bearing of CD= 280°60'
  - d) Back bearing of DE=290°30'
29. Explain the following: - a) Reduce level b) Benchmark c) Fore sight-reading d) Back sight reading e) Intermediate sight reading.

#### Section B (10 marks)

30. Explain the types of compasses used for surveying? List out the similarities & differences between them.

#### Section C (20 marks)

31. 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.

### UNIT IV

#### Section A (5 marks)

32. What is the objective of levelling?
33. What is the principle of Levelling?
34. Explain the terms in brief: Contour line, Contour interval and horizontal equivalent. Also write the characteristics of contour line.
35. Define vertical cliff and overhanging cliff
36. What is Reciprocal surveying?

**Section B (10 marks)**

37. Explain the different types of Levels used in Levelling?  
38. Explain the term datum, back sight, fore sight, change point & height of instrument.

**Section C (20 marks)**

39. Discuss the importance of contour maps in engineering projects. Explain how contour information is used in the following:  
a) Road alignment  
b) Reservoir planning  
c) Earthwork calculation  
d) Site selection for buildings
40. The following readings were taken with a dumpy level. The first reading were 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.

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		

**Prepared By: Chandan Kumar**

**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.