JHARKHAND Rai University RANCHI

End Semester/ Reappear (Semester III) Examination December,2024

Programme: Diploma (MiE) **Full Marks: 70**
Course: Mine Surveying I **Time: 3 Hrs.**
Course Code: 8D.203
Enrolment no. _____

Section I

1. **Short Answer type questions. Answer any four.** **4 x 5 = 20**
   a. Describe different kinds of chains and tapes used for linear measurements.
   b. Explain compass surveying. Name the instruments used for measurement of directions
   c. Explain the following: - i) Reduce level ii) Benchmark iii) Fore sight-reading iv) Back sight reading v) Intermediate sight reading.
   d. Explain the terms in brief: Contour line, Contour interval and horizontal equivalent. Also write the characteristics of contour line.
   e. Explain the term representative factor (R.F) and Calculate the RF of the given scale: i)1cm = 80 m ii)1cm=50 m
   f. Explain the difference between Angles and Bearings.

Section II

Long Answer type questions. Answer any three. **3 x 10 = 30**

2. Classify the different types of chains used in surveying. Draw neat diagram of metric chain.
3. Convert these to Whole Circle Bearing to Reduced bearing; - i) 244°30’ ii) 104°20’iii) 48°50’ iv) 329°15’v) 181°0’
4. Explain Local Attraction. Discuss the process of removal of Local attraction from station.
5. Explain the term datum, back sight, fore sight, change point & height of instrument.
6. Define the following: - i) Bearing ii) Meridian iii) True Bearing iv) Magnetic Bearing v) fore bearing and back bearing.

Section III

Application based questions. Answer any one. **1 x 20 = 20**

7. 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 X10^6 Kg/cm^2, A=0.3cm^2, w=30gm/m, Coefficient of thermal expansion =12x10^6/°C.
8. 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		

9. 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.

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