



# CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

17MN53

## Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 Mine Surveying – II

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Determine the distance and elevation formulae of a given point, when the staff is held vertical for inclined line of sight. (10 Marks)
- b. A tacheometer was set up at a station A and the readings on a vertically held staff at B were 2.255, 2.605 and 2.955, the line of sight being at an inclination of  $+8^\circ 24'$ . Another observation on the vertically held staff at B.M. gave the readings 1.640, 1.920 and 2.200 the inclination of the line of sight being  $+1^\circ 6'$ . Calculate the horizontal distance A and B, the elevation of B if the R.L. of B.M. is 418.685M. The constants of the instruments were 100 and 0.3. (10 Marks)

OR

- 2 a. Determine the distance and elevation of a given point, when both angles are elevated, both angles are depressed and when one angle is elevated and one is depressed. (10 Marks)
- b. A tacheometer is setup at an intermediate point on a traverse course PQ and the following observations are made on a vertically held staff:

Staff station	Vertical Angle	Staff Intercept	Axial Hair readings
P	$+8^\circ 36'$	2.350	2.105
Q	$+6^\circ 6'$	2.055	1.895

The instruments is fitted with an anallactic lens and the constant is 100. Compute the length of PQ and reduced level of Q, that of P being 321.5m. (10 Marks)

### Module-2

- 3 a. Explain deflection distance method to set out a curve. (10 Marks)
- b. Two tangents intersect at chainage  $59 + 60$ , the deflection angle being  $50^\circ 30'$ . Calculate the necessary data for setting out a curve of 15 chains radius to connect the two tangents if it is intended to set out the curve by offset from chords. Take peg interval equals to 100 links, length of the chain being equal to 20m (100 links). (10 Marks)

OR

- 4 a. Explain Rankine's deflection angle to set out a simple curve. (10 Marks)
- b. Two tangents intersect at the chainage 1190m the deflection angle being  $36^\circ$ . Calculate all the necessary data for setting out a circular curve with radius of 300m by deflection angle methods (peg interval = 30m). (10 Marks)

**Module-3**

- 5 a. Describe method of connecting the surface baseline to underground workings of a mine, when the access is gained through a level or a drift. Explain the survey work with neat sketch. (10 Marks)
- b. In a weisbach triangle, the azimuth of a plumb plane marked by two-wires A and B is  $115^{\circ} 23' 49''$  and C is a theodolite station on the South side of the eastern prolongation of AB. Given the following data, calculate the azimuth of the line CD. Illustrate your answer by a sketch.
- AB = 3.481m       $\hat{A}CD = 178^{\circ}14'33''$   
 BC = 2.674m       $\hat{B}CD = 179^{\circ}10'17''$   
 CA = 6.155m

(10 Marks)

OR

- 6 a. Explain Weisbach quadrilateral method of connecting baseline from surface to underground. (10 Marks)
- b. The following are the details of observation made in connection with correlation by Weisbach triangle method. A and B are the two plumb lines suspended from the pit top of the pit. D and E are the stations in the underground traverse survey which is required to be connected with the surface survey. Bearing of AB as found from the surface is  $40^{\circ} 40' 00''$  and the length of AB is 2.286m.  
 The observations: AB = 2.286m, BC = 2.621m, AC = 4.907m, CD = 18.348m, DE = 30.480m. Find the bearing of underground drift DE. (10 Marks)

**Module-4**

- 7 a. Explain the method of stope surveying to be adopted for open stopes with no obstruction with change in dip or strike of a stope. (10 Marks)
- b. Explain the method of setting out the direction and gradient in the underground mine. (10 Marks)

OR

- 8 a. Explain the method of stope surveying to be adopted for narrow are body of steep dip. (10 Marks)
- b. Explain the duties and responsibilities of a surveyor. (10 Marks)

**Module-5**

- 9 a. Explain the process of determination of horizontal and vertical angles from terrestrial photograph. (10 Marks)
- b. Explain wavelength regions and their application in remote sensing. (10 Marks)

OR

- 10 a. Explain the use of electromagnetic energy and spectrum in remote sensing. (10 Marks)
- b. Explain the process of determination of elevation of a point by photo graphic measurement. (10 Marks)

\* \* \* \* \*