

CBCS SCHEME

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15MN53

Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019 Mine Surveying – II

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. What is an Tachometric Survey? Explain the principle of Stadia method? Enlist their limitations. (08 Marks)
- b. Write a short note on Anallactic lens? A tacheometer was set up at a station A and the readings on 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 a vertically held staff at B.M, gave the readings 1.640, 1.920, 2.200, the inclination of the line of sight being $+1^{\circ} 6'$, calculate the horizontal distance between A and B and the elevation of B if the R.L. of B.M is 418.685 metres, the constants of the instruments were 100 and 0.3. (08 Marks)

OR

- 2 a. Explain the horizontal base subtense measurement. (08 Marks)
- b. The vertical angles to vanes fixed at 1 m and 3 m above the foot of the staff held vertically at a station A were $+2^{\circ} 30'$ and $+5^{\circ} 48'$ respectively find the horizontal distance and R.L of A if the height of instrument. Determined from observation on a benchmark is 436. 556 metres above datum. (08 Marks)

Module-2

- 3 a. Define a curve ranging. Enlist the definitions and notations of a simple curve. (08 Marks)
- b. Enlist the different types of linear methods of setting out simple circular curve? Explain the Rankine's method setting out curves. (08 Marks)

OR

- 4 a. Define a transition curve. Explain the functions and requirements of a transition curve. (08 Marks)
- b. Two chains intersect at chainages of (59 + 60). It is intended to set out the curve by offsets from chord taking each peg interval 20 m, the radius of the curve as 15 chains with a 20m chains of 100 links. (08 Marks)

Module-3

- 5 a. Define a correlation survey. List the different types of correlation survey? Explain assumed bearing method. (08 Marks)
- b. Define shaft plumbing. Explain the process of shaft plumbing. (08 Marks)

OR

- 6 a. Explain the Weisbach triangle method? (08 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 sketch.

AB = 3.481m, BC = 2.67m, CA = 6.155m. $\angle ACD = 179^{\circ} 14' 33''$, $\angle BCD = 179^{\circ} 10' 17''$

(08 Marks)

Module-4

- 7 a. Define Stope surveying. Explain the Tape triangulation method of surveying. (08 Marks)
b. Define Subsidence Survey. Explain the mine plans and sections. (08 Marks)

OR

- 8 a. Explain the principle of setting out gradient in tunnels and adits. What is the degree of accuracy in stope surveying? (08 Marks)
b. Explain the duties and responsibilities of a mine surveyor. (08 Marks)

Module-5

- 9 a. Define photogrammetry. Explain the method of determination of horizontal position of a point from photographic measurement : when camera axis horizontal. (08 Marks)
b. What is the basic principle of remote sensing? Explain electromagnetic energy. (08 Marks)

OR

- 10 a. Derive an equation to determine the focal length of a lens. (08 Marks)
b. List the different wavelengths regions and their principal applications in remote sensing. (08 Marks)
