Model Question Paper-2 with effect from 2019-20 (CBCS Scheme)

USN | | | | | | | | | | |

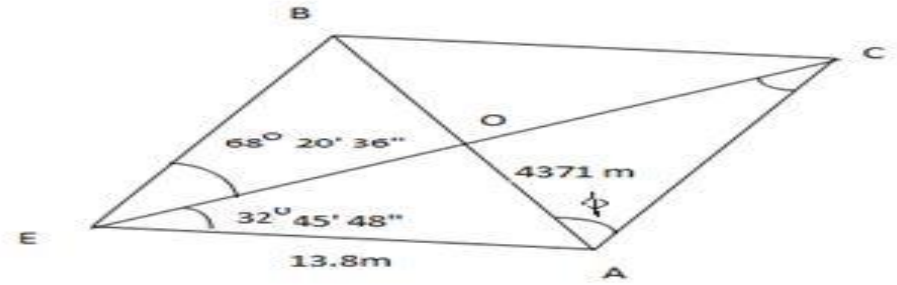
Fourth Semester B.E. Degree Examination

Mine Surveying - II

TIME: 03 Hours **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

<table>
<tr><th colspan="3">Module -1</th><th>*Bloom's Taxonomy Level</th><th>Marks</th></tr>
<tr><td>Q.01</td><td>a</td><td>Two gallery's in an underground coal mine are meeting at apex point with chainage of 50+30 with an deviation angle of 45^0, The radius of the curve to be subtended in between the gallery's found to be 10 chain. Calculate the necessary data to set a curve using Deflection Angle Method.</td><td>L3</td><td>10</td></tr>
<tr><td></td><td>b</td><td>Two tangents intersect at the chainage 1190m, the deflection angle being 36o. Determine all necessary data to setting a circular curve with radius of 300m by Rankine's Method with peg interval as 30m.</td><td>L3</td><td>10</td></tr>
<tr><td colspan="3">OR</td><td></td><td></td></tr>
<tr><td>Q.02</td><td>a</td><td>A curve has to be constructed in open cast mine. While doing reconnaissance survey the ground is found unsuitable for chaining. Considering the above case, explain the best method of setting the curve along with neat sketch?</td><td>L4</td><td>10</td></tr>
<tr><td></td><td>b</td><td>State the duties and responsibilities of surveyors</td><td>L1</td><td>5</td></tr>
<tr><td></td><td>c</td><td>Outline the importance of mine plans and sections</td><td>L2</td><td>5</td></tr>
<tr><td colspan="3">Module-2</td><td></td><td></td></tr>
<tr><td>Q. 03</td><td>a</td><td>The readings given below were made with a tachometric theodolite having constants of 100 and 0. The reduced at station A was 100 & line of sight of instrument axis 1.35m above the ground. Calculate the gradient between B & C.
<table>
<tr><th>Stations</th><th>Sighted To</th><th>WCB</th><th>Vertical Angle</th><th>Staff Reading</th></tr>
<tr><td rowspan="2">A</td><td>B</td><td>48</td><td>11 30'</td><td>2.48/1.514/1.000</td></tr>
<tr><td>C</td><td>138</td><td>17 00'</td><td>2.112/1.356/0.600</td></tr>
</table></td><td>L3</td><td>10</td></tr>
<tr><td></td><td>b</td><td>Derive an expression for distance and elevation of a given point P, when the staff held vertical for inclined line of sight a) Angle of Elevation b) Angle of Depression</td><td>L4</td><td>10</td></tr>
<tr><td></td><td>c</td><td>A tape of 90m nominal length was standardized on the flat and its true length was found to be 90.005m at a temperature of 75^oF. The tape was then used in catenary, in three equal spaces of 30m each to measure a level line, the apparent length of which was found to be 809.30m. The weight of the tape was 336 gm per 30m length and the pull used both during standardization and field measurement was 7.2kg. Assuming that mean temperature during the field measurement was 55^oF and co-efficient of expansion = 0.0000062 per ^oF, calculate correct length of the line.</td><td>L3</td><td>10</td></tr>
<tr><td colspan="3">OR</td><td></td><td></td></tr>
<tr><td>Q.04</td><td>a</td><td>Describe in detail, how to measure a base line and what are the corrections you would apply?</td><td>L2</td><td>10</td></tr>
<tr><td></td><td>b</td><td>From an eccentric station E, 13.8 meters from station A, the angles measured to the three trigonometric stations A, B and C are as follows. The stations C and E being on opposite side of line AB. Angle BEC=$68^o20'36"$ and Angle CEA=$32^o45'48"$. Length of AC and AB are 5588.4 m and 4371.0 m respectively. Calculate the angle BAC.</td><td>L3</td><td>10</td></tr>
</table>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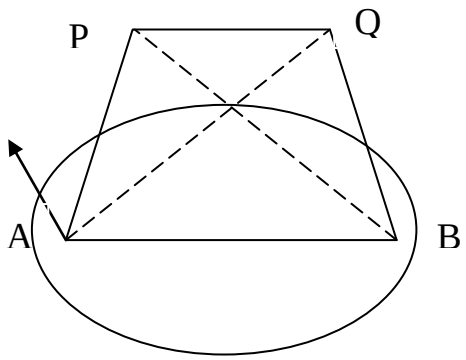
		Module-3		
Q. 05	a	In Weiss quadrilateral angles are measured at two points A and B with the objective of determining the azimuth of PO. Azimuth of AB = 89^0 42', Angle of PAQ = 39^0 54', angle of QAB = 42^0 19', Angle of PBQ = 41^0 08' and angle of ABP = 44^0 24'. 	L3	10
	b	Describe a method of connecting the surface survey with the survey of underground workings of a mine when only one shaft is available for survey work with a neat sketch. Explain the precautions to be taken in work?	L3	10
		OR		
Q. 06	a	Describe in detail the type of correlation to be adopted, when an entry to a mine is gained by means of a adit or inclined drifts?	L3	10
	c	Two plumb lines E and W are suspended in a vertical shaft. Bearing and distance of EW and co-ordinates of E as determined from the surface survey are: Azimuth of AB = 265^0 33'; Distance of EW = 1.3807m, co-ordinates of E = +542.241m and +280.112m. A theodolite is set up at T south of plane EW in a cross cut going east and the following observations are made: Angle of WTE = 0^0 02' 20", TW= 12.1555m and WT(205) = 40.2014m. Then the theodolite is set up at the station (205) and the following measurements are obtained: Angle T(205)(206)= 178^0 25' 00" and distance(205)(206) = 52.2055m, Find the bearing of underground base line (205) (206) and the coordinate of station (206).	L3	10
		Module-4		
Q. 07	a	Explain the stope surveying method most suitable for ore body dipping at 48° to horizon, with neat sketch.	L2	10
	b	Explain the process of subsidence monitoring due to underground activities	L2	7
	c	Mention the classification of stope surveying methods and instruments used in stope surveying.	L2	3
		OR		

Q. 08	a	Explain the method of stope surveying to be adopted in case of change in dip or strike of a stope	L2	10
	b	Explain the process of Slope Stability Radar in Mining	L2	5
	c	Explain the process of subsidence monitoring due to underground activities	L2	5
Module-5				
Q. 09	a	What are the applications of remote sensing? Explain in brief	L1	5
	b	Explain the Principle of GPS	L2	10
	c	List the applications of GPS in Mine Surveying	L1	5
OR				
Q. 10	a	Explain the applications of GIS in Mining	L2	10
	b	Explain the causes of Error in GPS measurements	L2	10

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.