UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End-Semester Examination, December, 2018Programme Name: B. TECH, IN MINING ENGINE ERING Course Name : MINE SURVEYING (PEMI 2002)Semester . : 03 hrsMarks : 100Instructions: As stated in the sections.SECTION A: 20 MARKS (ANSWER ALL)Marks : CO2Q1. a)Convert the following bearings to other system: a) 259°b) S 35° E.[4]CO3c)Exclamation of a Theodolite?[4]CO3c)Exclamation of a Theodolite?[4]CO3c)Explain the essential instrumental Qualities of a theodolite.[4]CO3d)What are differences between Height of Instrument and Rise & Fall method?[4]CO4e)With examples, discuss the classification of Error in Surveying.[4]CO4c)a)Illustrac Staff and Ranging rod?[4]CO4b)A 20 m chain was found to be 10 em too long after chaining a distance of 1500 m, it was found to be 18 em too long after chaining a traverse ABCD. Calculate the deflected angle between AB and BC.[6]Q3. a)The following bearings were taken in running a traverse ABCD. Calculate the deflected angle between AB and BC.[6]Q4. a)Calculate the amount and direction of true dip from the following information: Mine roadways Bearing[6]CO4Q4. a)Calculate the amount and direction of true dip from the following information: Mine roadways AB[6]CO4Q5. The following data observed for a traverse ABCDE are as follows:<	Name: Enrolment No:					
Programme Name:B. TECH. IN MINING ENGINEERING Course Name:Semester:: III Image: 100 Image: 100 Image: 100 Ima						
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$ \begin{array}{c c c c c c c } \hline Mine \ roadways & Bearing & Inclination \\ \hline AB & S \ 40^\circ \ W & Dipping \ 1 \ in \ 5 \\ \hline AC & S \ 30^\circ \ E & Dipping \ 1 \ in \ 3 \\ \hline AC & S \ 30^\circ \ E & Dipping \ 1 \ in \ 3 \\ \hline Two \ parallel \ seams \ separated \ by \ 42 \ m, \ are \ dipping \ 20^0 \ with \ horizontal. \ Calculate \ the \\ ength \ of \ drift \ to \ connect \ the \ seam \ if \ a) \ the \ drift \ is \ level, \ b) \ the \ drift \ is \ rising \ at \ 1 \ in \ 10 \\ \hline towards \ the \ dip \ of \ the \ seams. & \ \end{tabular} $						
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Q5.The following data observed for a traverse ABCDE are as follows: LineInclinationAB 210° 60 10° dippingBC 110° 90 15° dippingCD 60° 100 12° dippingDE 130° 120 Level						
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BC 110° 90 15° dipping[10]CO3CD 60° 100 12° dipping 10 CO3DE 130° 120 Level 100 12° dipping						
$ \begin{array}{cccc} CD & 60^{\circ} & 100 & 12^{\circ} \text{ dipping} \\ DE & 130^{\circ} & 120 & Level \end{array} $			[10]			
DE 130° 120 Level		11 0	[10]	003		
		11 0				
Measure the bearing length and the gradient of the closing line FA		Measure the bearing, length and the gradient of the closing line EA.				

	OR			
Q6.	The following data observed for a Theodolite traverse ABCDE are as follows:			
	Line Azimuth Length (m)		
	AB 98°30' 500			
	BC 30°20' 620		[4.0]	
	CD 298°30' 468		[10]	CO3
	DE 230°00' ?			
	EA 150°10' ?			
	Determine the missing lengths DE and EA of th	e traverse.		
	SECTION-C: 40 MARKS (AN	SWER 7 AND EITHER 8 OR 9)		
Q7. a)	The following values are observed for a triangle			
	$ $			
	Determine the most probable values of the angle	-	[8]	CO5
b)	Define: Most probable value, Root mean square value.		[4]	CO5
c)	Explain the duties and responsibilities of Mine Surveyor.		[8]	CO6
Q8. a)	A Tacheometer is set at O and at P and Q – ver as shown below:	tical staff was placed to take readings		
	Staff Station Vertical Angle	Stadia Hair Reading, (m)		
	P -6°36'	1.20 2.30 3.40		
	Q 10°30'	0.30 2.10 3.90		
	Calculate the horizontal and vertical difference	between Stations P and Q. Assume the		
	instrument constants were 100 & 0. Assume Height of Instrument = 100 m .			CO5
b)	Discuss the components of ANY TWO plans used in mine.		[10]	CO6
,	OR		_	
Q9. a)	Explain the different elements of a simple curve in U/G coal mine.		[10]	CO5
b)	What are the CMRs for requirements of Plans and Sections?		[10]	CO6

Name: Enrolment No:					
	UNIVERSITY OF PETROLEUM AND ENERGY STUDIES				
		ter Examination, December, 2018			
Program	nme Name: B. TECH. IN MININ	· · · · ·	Semester	: III	
Course			Time	: 03 hr	S
	arks : 100				
Instruct	tions: As stated in the sections.				
	SECTIO	N A: 20 MARKS (ANSWER ALL)			
S. No.	Statement of question			Marks	СО
Q1. a)	Principle of Surveying.			[4]	CO1
b)	What are the cumulative errors in c	haning?		[4]	CO1
c)	Define: Magnetic Dip and Declinat	ion.		[4]	CO2
d)	Explain Bowditch's rule.			[4]	CO3
e)		ht of Instrument and Rise & Fall method?		[4]	CO4
	SECTION B: 40 MA	RKS (ANSWER 2, 3, 4 AND EITHER	5 OR 6)		
Q2. a)	The plan of an old survey ground	plotted to a scale of 100m to 1cm, foun	d to have		
		was 19.6 cm. it was also found that the 2			
		o long. If the area of the plan measured n	ow is 150	10	601
b)	cm^2 , find the true area of the survey			[6] [4]	CO1 CO2
Q3.		m south and inverted in Prismatic compas- taken in running a traverse ABCDE in g		[4]	02
Q3.		0'; <c= 70°40';="" <d="162°20';" <e="126°</th"><th></th><th>[10]</th><th>CO2</th></c=>		[10]	CO2
	Fore Bearing of the line $CD = 60^{\circ}2$				002
Q4.	The following data observed for a t	raverse ABCDE are as follows:			
	Line Azimuth	Horiz. Length (m) G	radient		
	AB 175°		in 5 dip		
	BC 85°		evel	[10]	CO3
	CD 45°		in 8 rise		
	DE 305°		in 10 rise		
Q5.	Determine the bearing, length and t	Theodolite traverse ABCDE are as follow	e.		
QJ.	Line Bearing	Length (m)	5.		
	AB S 59°45' E	217.50			
	BC N 62°32' E	?			er e -
	CD N 37°36' W	?		[10]	CO3
	DE S 55°18' W	283.50			
	EA S 2°40' W	173.15			
	Determine the missing lengths BC	and CD of the traverse.			

	OR		
Q6. a) b)	Discuss the temporary adjustments of a Theodolite. Explain Repetition method of angle measurement.	[6+4]	CO3
	SECTION-C: 40 MARKS (ANSWER 7 AND EITHER 8 OR 9)		11
Q7. a)	The following staff readings are obtained in a Level survey (in m) - 0.895, 1.645, 2.895, 3.015, 0.955, 0.695, 0.585, 0.250, 1.535, 0.955, 2.135. The instrument was shifted after 4 th and 8 th readings. Given: RL of 1 st station – 100.00 m. calculate the gradient of the line joining 1 st and last points if the distance is 500 m. Apply the check.	[8]	CO4
b) c)	Write the properties of contours. Discuss the general features of Any Two plans used in Mines.	[6] [8]	CO4 CO6
Q8. a) b)	What are different types of curves? Show with a figure, the elements of a simple curve. Explain the general requirements of Plans and Sections?	[10] [10]	CO5 CO6
Q9. a)	The following values are observed for angles A, B, C with condition: $A + B = C$.		
b)	$Determine the most probable values of the angles A, B and C.Write the duties and responsibilities of a Surveyor.$	[10] [10]	CO5 CO6