Faculty Of Engineering

Prince of Songkla University

Mid-Term Examination	1st Semester 2006
August 5th, 2006	Room A401
221 – 361 Surveying II	Time: 13:00 - 16:30 (3 hours)

Instructions

1. There are 5 problems in this exam. (100 points)
2. Attempt all problems.
3. Books and lecture notes are not allowed.
4. Students can bring in calculators and dictionaries.
5. Students can use pencils in the answer books.

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นาย รุจ ศุภวิไล ผู้ออกข้อสอบ

1) From the control stations A and B, the angle $\hat{PAB}$ and $\hat{PBA}$ were measured respectively. Please calculate the coordinates of the unknown station P (X_p and Y_p) by using the given field data.

From	To	Face	Horizontal Circle Readings	Horizontal Angles	Remarks
A	P	L	283° 15′ 21″		Angle α
	B	L	320° 54′ 51″		
	B	R	140° 54′ 47″		
	P	R	103° 15′ 21″		
B	A	L	300° 07′ 15″		Angle β
	P	L	37° 38′ 43″		
	P	R	217° 38′ 47″		
	A	R	120° 07′ 13″		

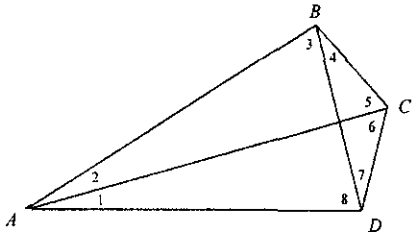
Given X_A = 3,300.259 m. X_B = 3,047.954 m.
Y_A = 3,082.183 m. Y_B = 3,048.344 m. (25 points)

2) What are control points? Name the types of control points and their applications in surveying. (15 points)

3) How many types of conditions are there in triangulation? Please name the types of conditions that are available in the chain of quadrilaterals. Also, write down the equations of these conditions in your answers. (15 points)

4) From the given quadrilateral ABCD, please adjust the interior angles until they satisfy both geometric conditions and trigonometric condition. (30 points)

$\hat{1}$ = 22° 01′ 42″ $\hat{5}$ = 86° 33′ 13″
$\hat{2}$ = 16 44 31 $\hat{6}$ = 58 46 35
$\hat{3}$ = 57 08 56 $\hat{7}$ = 15 06 52
$\hat{4}$ = 19 33 13 $\hat{8}$ = 84 04 50



5) What is the condition for singularity in resection problem? Describe the situation that must be avoided and also explain its meaning in details. (15 points)
