科目： 成本與管理會計學　　系所組：會計學系碩士班

注意：

一、 未書寫計算過程者不予計分。

二、 未在**彌封答案卷內**作答者，不予計分。

1. (25%) The FJU Company uses a flexible budget and standard costs to aid planning and control of its machining manufacturing operations. Its costing system for manufacturing has two direct-cost categories (direct materials and direct manufacturing labor—both variable) and two overhead-cost categories (variable manufacturing overhead and fixed manufacturing overhead, both allocated using direct manufacturing labor-hours). At the 40,000 budgeted direct manufacturing labor-hour level for August, budgeted direct manufacturing labor is $800,000, budgeted variable manufacturing overhead is $480,000, and budgeted fixed manufacturing overhead is $640,000.

The following actual results are for August:

Direct materials price variance (based on purchases)	$176,000 F
Direct materials efficiency variance	69,000 U
Direct manufacturing labor costs incurred	522,750
Variable manufacturing overhead flexible-budget variance	10,350 U
Variable manufacturing overhead efficiency variance	18,000 U
Fixed manufacturing overhead incurred	597,460
Fixed manufacturing overhead spending variance	42,540 F

The standard cost per pound of direct materials is $11.50. The standard allowance is three pounds of direct materials for each unit of product. During August, 30,000 units of product were produced. There was no beginning inventory of direct materials. There was no beginning or ending work in process. In August, the direct materials price variance was $1.10 per pound. In July, labor unrest caused a major slowdown in the pace of production, resulting in an unfavorable direct manufacturing labor efficiency variance of $45,000. There was no direct manufacturing labor price variance. Labor unrest persisted into August. Some workers quit. Their replacements had to be hired at higher wage rates, which had to be extended to all workers. The actual average wage rate in August exceeded the standard average wage rate by $0.50 per hour.

Required: Compute the following for August:

(1) Total number of pounds of excess direct materials used

(2) Variable manufacturing overhead spending variance

(3) Total number of actual direct manufacturing labor-hours used

(4) Total number of standard direct manufacturing labor-hours allowed for the units produced

(5) Production-volume variance

2. (25%) TSMC Equipment Corporation specializes in the manufacture of the medical equipment, a field that has become increasingly competitive. Approximately two years ago, Morris Chang, president of TSMC, became concerned that the company's bonus plan, which focused on division profitability, was not helping TSMC remain competitive. Chang decided to implement a gain sharing plan that would encourage employees to focus on operational areas that were important to customers and that added value without increasing costs. In addition to a profitability incentive, the revised plan also includes incentives for reduced rework costs, reduced sales returns, and on-time deliveries. Bonuses are calculated and awarded semiannually on the following basis. The bonuses are distributed among the relevant employees according to a formula developed by the division manager.

a. profitability: Two percent of operating income.

b. Rework: Costs in excess of 2 percent of operating income are deducted from the bonus amount.

c. On- time delivery: $5,000 if over 98 percent of deliveries are on time, $2,000 if 96 to 98 percent of deliveries are on time, and no increment if on -time deliveries are below 96 percent.
d. Sales returns: $3,000 if returns are less than 1.5 percent of sales. Fifty percent of any amount in excess of 1.5 percent of sales is deducted from the bonus amount.
e. Note: If the calculation of the bonus results in a negative amount for a particular period, there is no bonus, and the negative amount is not carried forward to the next period.

The revised bonus plan was implemented on January 1, 2011. Presented in the following table are the results for two of TSMC's divisions, C_Division and M_Division for the first year under the new bonus plan. Both of these two divisions had similar sales and operating income results for the prior year, when the old bonus plan was in effect. Based on the 2010 results, the employees of the C_Division earned a bonus of $27,060 while the employees of the M_Division earned $22,440.

	C_Division 2011/1/1-2011/6/30	C_Division 2011/7/1-2011/12/31	M_Division 2011/1/1-2011/6/30	M_Division 2011/7/1-2011/12/31
Sales	$4,200,000	$4,400,000	$2,850,000	$2,900,000
Operating income	$462,000	$440,000	$342,000	$406,000
On-time delivery	95.40%	97.30%	98.20%	94.60%
Rework Costs	$11,500	$11,000	$6,000	$8,000
Sales Returns	$84,000	$70,000	$44,750	$42,500

Required:

(1) For the C_Division, compute the semiannual bonuses awarded for 2011.
(2) For the M_Division, compute the semiannual bonuses awarded for 2011.
(3) Recommend any changes that might improve the bonus plan.

3. (25%) The 85。C Company is food-processing company and has two departments: Preparing and Cooking. The Preparing Department operates under the FIFO method of process costing and the Cooking Department operates under the weighted-average method of process costing. For the Preparing Department, conversion costs are added evenly during the process and direct materials are added at the end of the process. All completed work is transferred to the Cooking Department. In the Cooking Department, conversion costs are added evenly during the process. The 60% of direct materials are added at the beginning of the process and the remains of direct material are added at the 80% completion stage of the process. Unit costs are based on kilograms in the Preparing Department and liters in the Cooking Department. One kilogram of the Preparing Department can produce 1.3 liters of the Cooking Department. Summary data for May follow.

	Preparing Department	Degree of completion	Cooking Department	Degree of completion
Units Data				
Work in process (May 1)	20,000	70%	10,000	40%
Started during May	80,000		?	
Good units completed and transferred out during May	70,000		74,000	
Work in process (May 31)	?	80%	?	70%

	Preparing Department	Cooking Department
Cost Data		
Work in process (May 1)		
Transferred-in Costs	$ –	$ 314,000
Direct Materials	?	200,000
Conversion Cost	78,000	185,800
Total costs added during May		
Direct Materials	$ 910,000	$ 810,000
Conversion Cost	160,000	1,021,900

Required: (Carry unit-cost calculations to three decimal places when necessary. Calculate final totals to the nearest dollar.)

(1) For the Preparing Department, use the FIFO method to calculate the assigned total costs of units completed and transferred out.

(2) For the Cooking Department, use the weighted-average method to calculate the assigned total costs of units completed and transferred out.

(3) If the markup percentage on full manufacturing cost is 50%, what is the unit selling price for the end product of the 85。C Company.

4. (25%) The Honda Engines Co. produces the same power generators in two Taiwan plants, a new plant in Peoria and an older plant in Moline. The following data are available for the two plants:

	A	B	C	D	E
1		Peoria		Moline	
2	Selling price		$150.00		$150.00
3	Variable manufacturing cost per unit	$72.00		$88.00	
4	Fixed manufacturing cost per unit	30.00		15.00	
5	Variable marketing and distribution cost per unit	14.00		14.00	
6	Fixed marketing and distribution cost per unit	19.00		14.50	
7	Total cost per unit		135.00		131.50
8	Operating income per unit		$ 15.00		$ 18.50
9	Production rate per day	400	units	320	units
10	Normal annual capacity usage	240	days	240	days
11	Maximum annual capacity	300	days	300	days

All fixed costs per unit are calculated based on a normal capacity usage consisting of 240 working days. When the number of working days exceeds 240, overtime charges raise the variable manufacturing costs of additional units by $3.00 per unit in Peoria and $8.00 per unit in Moline. Honda Engines Co. is expected to produce and sell 192,000 power generators during the coming year. Wanting to take advantage of the higher operating income per unit at Moline, the company's production manager has decided to manufacture 96,000 units at each plant, resulting in a plan in which Moline operates at capacity (320 units per day * 300 days) and Peoria operates at its normal volume (400 units per day * 240 days).

Required

(1) Calculate the breakeven point in units for the Peoria plant and for the Moline plant.

(2) Calculate the operating income for the Peoria plant and for the Moline plant that would result from the production manager's plan to produce 96,000 units at each plant.

(3) Determine how the production of 192,000 units should be allocated between the Peoria and Moline plants to maximize operating income for Honda Engines. Calculate this maximized operating income for Honda Engines.