Examination: 5075 „Management VI" **Summer Term 2009**

Examiner: Prof. Dr. Barbara Schöndube-Pirchegger

Examination questions: 4

The following aids can be used: a calculator in accordance with the instructions given by the Board of Examiners and a dictionary.

Hint: A maximum of 120 points can be reached from solving the 4 problems below.

Problem 1 (20 points):

Sarah White operates a booth selling the energy drink 'Fresh Power'. During a typical month, the booth sells 9,000 units. Fixed costs are $ 3,400. The selling price per unit is $1.20, variable costs are $0.52 per drink.

Required:

1. Compute the monthly contribution margin and the operating income.
2. Compute the revenues needed to earn a target operating income of $ 2,040.
3. Determine the monthly breakeven sales in units and dollars.
4. Examine the sensitivity of the breakeven point (in units) to the following changes:
   a. Decreasing the selling price by 10 %.
   b. Decreasing variable cost to $ 0.50 per unit. The selling price is $1.20.
5. Next year, Sarah plans to start selling two more energy drinks. She expects the following monthly sales numbers:

	Fresh Power	Fruit Power	Energizer
Price	$ 1.20	$ 1.8	$ 2
Variable cost	0.52	0.68	0.73
Sales units	3,500	5,000	3,000

Calculate the break-even quantities and revenues for the sales mix given if fixed costs increase by 60 %.

Problem 2 (35 points):

Tenner Associates is a recently formed law partnership. So far, it has just two clients – Heynes Clothes and South Fabrics. Since Heynes Clothes was strongly dissatisfied with the price Tenner charged for some legal work done for Heynes Clothes, the managing partner of

Tenner wants to re-examine the costs and prices charged on the most recent jobs done for its two clients.

Tenner Associates uses a cost-based approach to pricing (billing) each job. Currently it uses a simple costing system with a single direct-cost category (professional labor-hours) and a single indirect-cost pool (general support). Indirect costs are allocated to cases on the basis of professional labor-hours per case. Under this simple costing system, the cost of the Heynes Clothes' job was $17,435 and the cost of the South Fabric's job amounted to $15,965.

The managing partner of Tenner, Jim Cayn, decides to examine how using a revised costing system would have affected the costs of the Heynes Clothes and South Fabric's jobs. Under the revised costing system, $14,000 of the $21,000 included in the indirect cost pool are reclassified as direct costs ($ 3,250 relate to the Heynes Clothes' job, and $10,750 to the South Fabric's job). In addition, Jim decides to use separate direct-cost rates for partners and associates and to use separate indirect-cost pools for partners and associates. Indirect costs in each indirect-cost pool would be allocated on the basis of total hours of that category of professional labor. From the total indirect cost-pool of $7,000, $4,600 is attributable to the activities of partners, and $2,400 is attributable to the activities of associates. The Heynes job used 24 partner-hours and 80 associate-hours. The South Fabric's job used 56 partner-hours and 40 associate-hours. Therefore, totals of the two jobs together were 80 partner-hours and 120 associate-hours. The rates per category of professional labor are as follows:

Category of professional labor	**Direct cost per hour**
Partner	$ 95
Associate	40

These direct-cost rates do not include the newly reclassified direct cost of $14,000 mentioned before.

Required:

1.) Compute the indirect–cost allocation rates per category of professional labor.

2.) Compute the direct and indirect costs of the Heynes and South Fabric's jobs using the revised system, with multiple direct-cost categories and multiple indirect-cost pools.

3.) What are the total costs of the Heynes and South Fabric's jobs under the revised system?

4.) Compare the costs of Heynes and South Fabric's jobs in requirement 3 with those under the simple costing system. Which costing system should Tenner use? Give reasons for your opinion.

Problem 3 (40 points):

The Gregg Manufacturing Company's costing system has two direct-cost categories: direct materials and direct manufacturing labor. Manufacturing overhead (both variable and fixed) is allocated to products on the basis of standard direct manufacturing labor-hours (DLH). At the beginning of 2007, Gregg adopted the following standards for its manufacturing costs:

	Input	**Cost per output unit**
Direct materials	3 pounds at $5 per pound	$ 15.00
Direct manufacturing labor	5 hrs. at $15 per hr.	75.00
Manufacturing overhead:		
Variable	$6 per DLH	30.00
Fixed	$8 per DLH	40.00
Standard manufacturing cost per output unit		$160.00

Gregg's budgeted fixed manufacturing overhead for January 2007 was based on 40,000 direct manufacturing labor-hours. The records for January indicated the following:

Direct materials used	23,100 pounds at $5.20 per pound
Direct manufacturing labor	40,100 hrs. at $14.60 per hr.
Total actual manufacturing overhead (variable and fixed)	$600,000
Actual production	7,800 output units

Required:

1.) Prepare a schedule of total standard manufacturing costs for the 7,800 output units in January 2007.

2.) For the month of January 2007, compute the following variances, indicating whether each is favorable (F) or unfavorable (U):

a. Direct materials price variance

b. Direct materials efficiency variance

c. Direct manufacturing labor price variance

d. Direct manufacturing labor efficiency variance

e. Variable manufacturing overhead efficiency variance

f. Production-volume variance

g. Total manufacturing overhead spending variance

Problem 4 (25 points):

Pendleton Engineering can produce three types of cutting tools, A2, N8, and F4. All types of tools need to be manufactured on a regular machine of the type M1. In addition, products A2 and F4 must be manufactured on a high-precision machine of the type M2. You are asked to determine the production programme for next month. The following information is available.

Type	A2	N8	F4
Sales price per unit	$ 100	$ 150	$ 180
Variable cost per unit	60	100	120
Market demand (in units)	400	350	250
Capacity needed of regular machine M1 (in hours)	0.5	1.0	0.8
Capacity needed of high-precision machine M2 (in hours)	0.3	-	0.5

The monthly capacity of Pendleton's M1 machines amounts to 750 hours, and the monthly capacity of its M2 machine is 200 hours.

Required:

1.) Determine the profit maximizing production programme.

2.) Determine the optimal production programme given that the firm has already signed a contract to deliver a minimum of 100 units of N8 and 200 units of F4.