MBA (FT)

Paper 6205: MANAGEMENT ACCOUNTING

(Admissions of 2010 and onwards)

Time : 3 Hours **Maximum Marks : 50**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *any three* questions from Q.2 to Q.5. *Question 1* is compulsory. Make suitable assumptions wherever necessary.

Q.1 Read the following case and answer the questions given in end. [14]

Mile High Cycles

In 2005, Bob Moyer was reviewing production costs for Mile High Cycles. Located in Denver, Colorado, the company sold very high-quality, handcrafted mountain bikes to bicycle retailers throughout the country. Sales for the company were $13 million that year.

Bob Moyer had been an avid cyclist in college, racing for the Stanford University cycling team while completing his degree in mechanical engineering. After working for a few years as a design engineer for a company in Denver, Bob decided to start his own business. As a hobby, he had designed and built several prototypes of a mountain bike, which had been enthusiastically received by his mountain-biking friends. Approaching several friends and relatives for start-up money, Mile High Cycles was founded in 2003.

A mountain bike was a bicycle with 15 to 21 speeds, designed and built to take the punishment of riding on dirt trails and roads. The bikes were first made by avid cyclists who customized their 10-speed road bikes in order to ride on mountain trails and dirt roads. Some with frame building experience began to experiment making their own frames in order to handle better the additional demands of off-road riding. By 1992, several small companies had emerged selling bicycles specifically designed for riding under these conditions.

During the rest of the 1990s, mountain bikes had taken off in popularity, not only for use off-road but also for use in the city, where their sturdy construction could withstand the pounding from potholes and curbs. In addition, many casual cyclists preferred the mountain bike's more upright riding position in comparison to that of the hunched position of the 10-speed road bike. Sales of all bicycles in the United States had declined in 2003. However, over the same time period, sales of mountain bikes increased to more than 2.0 million units.

Bob Moyer had planned to produce 10,000 bikes in 2004, all of one model. Operations at Mile High Cycles consisted of three departments: frames, wheel assembly, and final assembly. In frames, steel tubing was cut to length for the components of the frame. Then the pieces were carefully welded together to form the completed frameset. This part of the process was quite time-consuming, requiring frequent inspection and measurement to ensure that the frameset was aligned perfectly. After welding, the frame was painted in one of 10 different color schemes and prepared for final assembly.

In wheel assembly, front and rear wheel were assembled from their key components: hubs, spokes, and rims. All of the components were purchased from an outside supplier. Mile High Cycles used a high-quality automatic lacing and truing machine to build its wheels. This machine would lace the spokes between the hub and rim and then automatically tighten the spokes to the appropriate tension. The machine was quite precise but would occasionally damage spokes during the insertion process. In such a case, the operator would replace any damaged parts and restart the machine. Each wheel would also be inspected and trued by hand in order to insure that the wheels were in perfect alignment.

In final assembly, the frame and wheels were combined with other purchased parts to create the final package that would then be shipped to bicycle dealers. In this area, the front fork and many other key components were attached to the frame, and the inner tubes and tires were mounted on the wheels. In order to minimize damage while shipping, some of the bicycles' components were left packaged for the bicycle dealer to assemble before selling the bike to the final customer. All of the components were purchased from outside suppliers and then were combined to form kits for the bicycles. Mile High Cycles carried an inventory of spare parts to replace any parts damaged during assembly or shipping, although such replacement was quite infrequent.

In reviewing his costs, Bob noted that he had produced 10,800 bicycles in 2004, 800 more than planned. Bob thought that operations during the year had done well to meet the additional demand, but he wondered if Mile High Cycles was doing a good job in managing its costs. Exhibit 1 shows the planned material, labor, and overhead costs for 2004. Exhibit 2 shows the actual material, labor, and overhead costs for that year.

I. Determine the direct cost and overhead variances. What might be causing each of the variances to occur?

II. Should Bob Moyer be concerned about Mile High Cycles's performance? Where should he be prepared to direct his attention? What additional information should he try to obtain?

III. Are there any purposes for which a total, per unit variance would be more useful than a series of functional variances? If so, for what?

Exhibit 1: 2004 Production Budget
Budget based on 10,000 bicycles production

Frame assembly:		
Steel tubing	$3,300,000	(110,000 lbs. @ $30.00/lb.)
Paint	25,000	(1,250 gals. @ $20.00/gal.)
Labor	$1,500,000	(100,000 hrs. @ $15.00/hr.)
Total frame	$4,825,000	
Wheel assembly:		
Parts	$1,200,000	(10,000 kits @$120.00/kit)
Labor	65,000	(5,000 hrs. @$13.00/hr.)
Total wheel	$1,265,000	
Final assembly:		
Parts	$3,500,000	(10,000 kits @$350.00/kit)
Labor	105,000	(7,500 hrs. @$14.00/hr.)
Total final assembly	$3,605,000	
Overhead costs:		
Rent	$250,000	
Office staff	100,000	
Depreciation	100,000	

Other costs	750,000	(estimated to be 2/3 variable)
Total overhead	$1,200,000	
Total annual costs	$10,895,000	

Exhibit 2: 2004 Production Costs
Actual production: 10,800 bicycles

Frame assembly:		
Steel tubing	$3,572,100	(113,400 lbs. @ $31.50/lb.)
Paint	28,187	(1,375 gals. @ $20.50/gal.)
Labor	$1,528,050	(100,200 hrs. @ $15.25/hr.)
Total frame	$ 5,128,337	
Wheel assembly:		
Parts	$1,317,600	(10,800 kits @ $122.00/kit)
Rework parts	25,000	(spokes and rims)
Labor	74,250	5500 hrs @ 13.5/hr.
Total wheel	$1,416,850	
Final assembly:		
Parts	$3,963,600	(10,800 kits @ $367.00/kit)
Rework parts	45,000	(miscellaneous parts)
Labor	116,000	(8,000 hrs. @ $14.50/hr.)
Total final assembly	$4,124,600	
Overhead costs:		
Rent	$250,000	
Office staff	100,000	
Depreciation	100,000	
Other costs	850,000	
Total overhead	$1,300,000	
Total annual costs	$11,969,787	

Q.2 Answer the following:

I. Discuss the foundational assumptions of CVP analysis. **[2]**

II. Babloo Toys, manufactures and sells 15,000 units of Teddy Bear toy (TB), in 2005. The full cost per unit is Rs 200. Babloo Toys earns a 20 % return on an investment of Rs 18,00,000 in 2005.

Required: (1) Calculate the selling price and the markup percentage on the full cost per unit of TB toy in 2005. (2) If the selling price in requirement 1 represents a markup percentage of 40 % on variable cost per unit, calculate the variable cost per unit of TB toy in 2005. (3) Calculate Babloo Toys's operating income if it had increased the selling price to Rs 230. At this price Babloo Toys would have sold 13,500 units of TB toy. Assume no change in total fixed costs. Should Babloo Toys increase the selling price of TB toy to Rs 230? (4) In response to competitive pressures, Babloo Toys must reduce the price of TB toy to Rs 210 in 2006, in order to achieve sales of 15,000 units. Babloo Toys plans to reduce its investment to Rs 1,650,000. If Babloo Toys wants to maintain a 20 % return on investment, what is the target cost per unit in 2006? **[6]**

III. The Rainbows is a take-out food store, at a popular beach resort. Sudhir, owner of the Rainbows, is deciding how much refrigerator space to devote to four different drinks. Pertinent data on these four drinks are as follows:

	Cola	**Lemonade**	**Punch**	**Natural Orange Juice**
Selling price per case	Rs 180	Rs 192	Rs 264	Rs 384

Variable cost per case	135	152	201	302
Cases sold per foot of shelf space per day	25	24	4	5

Sudhir has a maximum front shelf space of 12 feet to devote to the four drinks. He wants a minimum of 1 foot and a maximum of 6 feet of front shelf space for each drink.

Required: (1) Compute the contribution margin per case of each type of drink? (2) A co-worker of Sudhir's recommends that he maximize the shelf space devoted to those drinks with the highest contribution margin per case. Evaluate this recommendation. (3) What shelf-space allocation for the four drinks would you recommend for the Rainbows? Show your calculations. **[4]**

Q.3 Answer the following:

I. Discuss cost hierarchy under activity based cost management system. **[3]**

II. Basista Coffee Ltd. (BCL) buys coffee beans from around the world and roasts, blends, and packages them for resale. The major cost is direct materials; however, there is substantial manufacturing overhead in the predominantly automated roasting and packing process. The company uses relatively little direct labor.

Some of the coffees are very popular and sell in large volumes, whereas a few of the newer blends sell in very low volumes (BCL) prices its coffee at budgeted cost, including allocated overhead, plus a markup on cost of 30 per cent.

Data for the current year budget include manufacturing overhead of Rs 30,00,000, which has been allocated on the basis of each product's budgeted direct-labor cost. The budget direct-labor cost for current year totals Rs 6,00,000. purchases and use of materials (mostly coffee beans) are budgeted to total Rs 60,00,000.

The budgeted direct costs for one-kg bags of two of the company's products are

	Indian	**Malaysian**
Direct materials	Rs 42	Rs 32
Direct labor	Rs. 3	Rs. 3

BCL's controller believes the existing costing system may be providing misleading cost information. She has developed an activity-based analysis of current year budgeted manufacturing overhead costs shown in the following table.

Activity	**Cost driver**	**Cost driver rate**
Purchasing	Purchase orders	Rs 5,000
Materials handling	Setups	4,000
Quality control	Batches	2,400
Roasting	Roasting-hours	100
Blending	Blending-hours	100
Packaging	Packaging-hours	100

Data regarding the current year production of the Indian and Malaysian coffee follow. There will be no beginning or ending materials inventory for either of these coffees.

Particulars	**Indian**	**Malaysian**
Expected sales	1,00,000 kgs	2,000 kgs
Purchase orders	4	4
Batches	10	4
Setups	30	12

Roasting-hours	1,000	20
Blending-hours	500	10
Packaging-hours	100	2
Required		

1. Using BCL's existing costing system:
   a. Determine the company's current year budgeted manufacturing overhead rate using direct-labor cost as the single allocation base.
   b. Determine the current year budgeted costs and selling prices of 1 kg of Indian coffee and 1 kg of Malaysian coffee.
   c. Use the controller's activity-based approach to estimate the current year budgeted cost for 1 kg of Indian coffee and Malaysian coffee. Allocate all costs to the 1,00,000 kg of Indian and the 2,000 kg of Malaysian. Compare the results with those in requirement b.
2. Examine the implications of your answers to requirement c for BCL's pricing and product-mix strategy. **[9]**

Q.4 Answer the following:

I. Discuss non linear cost functions. **[3]**

II. Explain and illustrate methods of segregating semi variable costs into fixed and variable costs. **[3]**

III. Ranbaxy Ltd. Manufactures pharmaceutical products that are sold through a network of sales agents. The agents are paid a commission of 18 per cent of revenues. The income statement for the current year ending March 31, is as follows:

Ranbaxy Limited: Income Statement
For the Current Year Ended March 31

Revenues		Rs 2,60,00,000
Cost of goods sold		
Variable	Rs 1,17,00,000	
Fixed	28,70,000	1,45,70,000
Gross margin		1,14,30,000
Marketing costs		
Commissions	46,80,000	
Fixed costs	34,20,000	81,00,000
Operating income		33,30,000

Ranbaxy is considering hiring its own sales staff to replace the network of sales agents. Ranbaxy would pay its salespeople a commission of 10 per cent of revenues and incur additional fixed costs of Rs 20,80,000.

1. Calculated Ranbaxy Ltd's breakeven point in revenues for the current year.
2. Calculate Ranbaxy Ltd's breakeven point in revenues for the current year if the company had hired its own sales force in the current year to replace the network of sales agents.
3. Calculate the degree of operating leverage at revenues of Rs 2,60,00,000 if (a) Ranbaxy uses sales agents and (b) Ranbaxy employs its own sales staff. Describe the advantages and disadvantages of each alternative.
4. If Ranbaxy had hired its own sales staff and increased the commission paid to them to 15 per cent, keeping all other cost behavior patterns the same, how much

revenue would Ranbaxy have to generate to earn the same operating income as in the current year? [6]

Q.5 Answer the following:

I. Enlist the steps in preparing an operating budget. [3]

II. Ansal Construction assembles residential houses. It used a job-costing system with two direct-cost categories (direct materials and direct labor) and one indirect-cost pool (assembly support). Direct labor-hours is the allocation base for assembly support costs. In December Year 1, Ansal budgets Year 2 assembly-support costs to be Rs 4,000,000 and Year 2 direct labor-hours to be 80,000.

At the end of Year 2, Ansal is comparing the costs of several jobs that were started and competed in Year 2.

Particulars	Gurgaon Model	Noida Model
Construction period	Feb-June 2004	May-Oct. 2004
Direct materials	Rs 2,12,900	Rs 2,55,208
Direct labor	Rs 72,552	Rs 82,820
Direct labor-hours	1,800	2,020

Direct materials and direct labor are paid for on a contract basis. The costs of each are known when direct materials are used or direct labor-hours are worked. The Year 2 actual assembly-support costs were Rs 1,37,76,000, and the actual direct labor-hours were 328,000.

1. Compute the (a) budgeted and (b) actual indirect-cost rates. Why do they differ?
2. What is the job cost of the Gurgaon Model and the Noida Model using (a) normal costing and (b) actual costing?
3. Why might Ansal construction prefer normal costing over actual costing? [6]

III. Bank Printers Limited, produces luxury check-books with three checks and stubs per page. Each checkbook is designed for an individual customer and is ordered through the customer's bank. The company's operating budget for September included these data

Number of checkbooks	15,000
Selling price per book	Rs 20
Variable cost per book	Rs 8
Fixed costs for the month	Rs 1,45,000
The actual results for September were	
Number of checkbooks produced and sold	12,000
Average selling price per book	Rs 21
Variable cost per book	Rs 7
Fixed costs for the month	Rs 1,50,000

The executive vice president of the company observed that the operating income for September was much less than anticipated, despite a higher-than-budgeted selling price and a lower-than-budgeted variable cost per unit. You have been asked to provide explanations for the disappointing September results.

Bank Printer Limited develops its flexible budget on the basis of budgeted per-output-unit revenue and per-output-unit variable costs without detailed analysis of budgeted inputs.

Required: 1. Prepare a Level 1 analysis of the September performance. 2. Prepare a Level 2 analysis of the September performance. 3. Why might Bank Printer find the Level 2 analysis more informative than the Level 1 analysis? Explain your answer. **[3]**