[This question paper contains 7 printed pages.]

4234 *Your Roll No.* ....

MBA (FT) **A**

Paper F – 3106 – MANAGEMENT CONTROL SYSTEMS

(Admissions of 1998 and onwards)

Time : 3 hours *Maximum Marks : 70*

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

Attempt **all** *questions.*
Make suitable assumptions wherever necessary.

Q.1 "The key to motivating people to behave in a manner that furthers an organizational's goals lies in the way the organization's incentives relate to the individuals' goals". Comment. [10]

Q.2 A company produces product 'A' which is at present being sold at Rs. 7 each, the monthly production is 25,000 units. The company can, as an alternative make product 'F', by using one unit of 'A' as raw material, in each unit of 'F'. Product 'F' can be sold at Rs. 10 each. The company pays sales commission at 10 percent on sales value. Capacity to manufacture 'F' is available to the extent of 12,500 units per month without additional capital cost. Taking the following additional information, advice whether or not the company should go in for the manufacture of product 'F'.

Product	'A' Rs.	'F' Rs.
Raw material cost	1.50	0.50
Labour & overheads	2.10	1.40

The figures given for 'F' represent expenses incurred in addition to those incurred for the manufacture of 'A'. The supervision charges for manufacturing 'F' will be Rs. 4,000 per month extra. [10]

Q.3 Analyze the following case and attempt the questions given at the end of the case study. [25]

P.T.O.

Birch Paper Company

"If I were to price these boxes any lower than $480 a thousand," said James Brunner, manager of Birch Paper Company's Thompson Division, "I'd be countermanding my order of last month for our salesmen to stop shaving their bids and to bid full-cost quotations. I've been trying for weeks to improve the quality of our business, and if I turn around now and accept this job at $430 or $450 or something less than $480, I'll be tearing down this program I've been working so hard to build up. The division can't very well show a profit by putting in bids that don't even cover a fair share of overhead costs, let alone give us a profit."

Birch Paper Company was a medium-sized, partly integrated paper company, producing white and kraft papers and paperboard. A portion of its paperboard output was converted into corrugated boxes by the Thompson Division, which also printed and colored the outside surface of the boxes. Including Thompson, the company had four producing divisions and a timberland division, which supplied part of the company's pulp requirements.

For several years, each division had been judged independently on the basis of its profit and return on investment. Top management had been working to gain effective results from a policy of decentralizing responsibility and authority for all decisions except those relating to overall company policy. The company's top officials believed that in the past few years the concept of decentralization had been applied successfully and that the company's profits and competitive position definitely had improved.

The Northern Division had designed a special display box for one of its papers in conjunction with the Thompson Division, which was equipped to make the box. Thompson's staff for package design and development spent several months perfecting the design, production methods, and materials to be used. Because of the unusual color and shape, these were far from standard. According to an agreement between the two divisions, the Thompson Division was reimbursed by the Northern Division for the cost of its design and development work.

When all the specifications were prepared, the Northern Division asked for bids on the box from the Thompson Division and from two outside companies. Each division manager was normally free to buy from whatever supplier he wished, and even on sales within the company, divisions were expected to meet the going market price if they wanted the business.

During this period, the profit margins of such converters as the Thompson Division were being squeezed. Thompson, as did many other similar converters, bought its paperboard, and its function was to print, cut, and shape it into boxes. Though it bought most of its materials from other Birch divisions, most of Thompson's sales were made to outside customers. If Thompson got the order from Northern, it probably would buy its linerboard and corrugating medium from the Southern Division of Birch. The walls of a corrugated box consist of outside and inside sheets of linerboard sandwiching the fluted corrugating medium. About 70 percent of Thompson's out-of-pocket cost of $400 for the order represented the cost

of linerboard and corrugating medium. Though Southern had been running below capacity and had excess inventory, it quoted the market price, which had not noticeably weakened as a result of the oversupply. Its out-of-pocket costs on both liner and corrugating medium were about 60 percent of the selling price.

The Northern Division received bids on the boxes of $480 a thousand from the Thompson Division, $430 a thousand from West Paper Company, and $432 a thousand from Eire Papers, Ltd. Eire Papers offered to buy from Birch the outside linerboard with the special printing already on it, but would supply its own inside liner and corrugating medium. The outside liner would be supplied by the Southern Division at a price equivalent of $90 a thousand boxes, and it would be printed for $30 a thousand by the Thompson Division. Of the $30, about $25 would be out-of-pocket costs.

Since this situation appeared to be a little unusual, William Kenton, manager of the Northern Division, discussed the wide discrepancy of bids with Birch's commercial vice president. He told the vice president: "We sell in a very competitive market, where higher costs cannot be passed on. How can we be expected to show a decent profit and return on investment if we have to buy our supplies at more than 10 percent over the going market?"

Knowing that Mr. Brunner on occasion in the past few months had been unable to operate the Thompson Division at capacity, it seemed odd to the vice president that Mr. Brunner would add the full 20 percent overhead and profit charge to his out-of-pocket costs. When he was asked about this, Mr. Brunner's answer was the statement that appears at the beginning of the case. He went on to say that having done the developmental work on the box, and having received no profit on that, he felt entitled to a good markup on the production of the box itself.

The vice president explored further the cost structures of the various divisions. He remembered a comment that the controller had made at a meeting the week before to the effect that costs which were variable for one division could be largely fixed for the company as a whole. He knew that in the absence of specific orders from top management Mr. Kenton would accept the lowest bid, which was that of the West Paper Company for $430. However, it would be possible for top management to order the acceptance of another bid if the situation warranted such action. And though the volume represented by the transactions in question was less than 5 percent of the volume of any of the divisions involved, other transactions would conceivably raise similar problems later.

Questions

1. Which bid should Northern Division accept that is in the best interests of Birch Paper Company?
2. Should Mr. Kenton accept this bid? Why or why not?
3. Should the vice president of Birch Paper Company take any action?
4. In the controversy described, how, if at all, is the transfer price system dysfunctional? Does this problem call for some change, or changes, in the transfer pricing policy of the overall firm? If so, what *specific* changes do you suggest?

Q.4 Analyze the following case and attempt the questions given at the end of the case study. [25]

Piedmont University

When Hugh Scott was inaugurated as the 12th President of Piedmont University in 1984, the university was experiencing a financial crisis. For several years enrollments had been declining and costs had been increasing. The resulting deficit has been made up by using the principal of "quasi-endowment" funds. (For true endowment funds, only the income could be used for operating purposes; the principal legally could not be used. Quasi-endowment funds had been accumulated out of earlier years' surpluses with the intention that only the income on these funds would be used for operating purposes; however, there was no legal prohibition on the use of the principal.) The quasi-endowment funds were nearly exhausted.

Scott immediately instituted measures to turn the financial situation around. He raised tuition, froze faculty and staff hirings, and curtailed operating costs. Although he had come from another university and, therefore, was viewed with some skepticism by the Piedmont faculty, Scott was a persuasive person, and the faculty and trustees generally agreed with his actions. In the year ended June 30, 1986, there was a small operating surplus.

In 1986, Scott was approached by Neil Malcolm, a Piedmont alumnus and partner of a local management consulting firm, who volunteered to examine the situation and make recommendations for permanent measures to maintain the university's financial health. Scott accepted this offer.

Malcolm spent about half time at Piedmont for the next several months and had many conversations with Scott, other administrative officers, and trustees. Early in 1987, he submitted his report. It recommended increased recruiting and fund-raising activities, but its most important and controversial recommendation was that the university be reorganized into a set of profit centers.

At that time the principal means of financial control was an annual expenditure budget submitted by the deans of each of the schools and the administrative heads of support departments. After discussion with the president and financial vice president, and usually with minor modifications, these budgets were approved. There was a general understanding that each school would live within the faculty size and salary numbers in its approved budget, but not much stress was placed on adhering to the other items.

Malcolm proposed that in future the deans and other administrators would submit budgets covering both the revenues and the expenditures for their activities. The proposal also involved some shift in responsibilities and new procedures for crediting revenues to the profit centers that earned them and charging expenditures to the profit centers responsible for them. He made rough estimates of the resulting revenues and expenditures of each profit center using 1986 numbers; these are given in Exhibit 1.

A series of discussions about the proposal were held in the University Council, which consisted of the president, academic deans, provost, and financial vice president. Although there was support for the general ideas, there was disagreement on some of the specifics, as described below.

EXHIBIT 1
Piedmont University: Rough Estimates of 1986 Impact of the Proposals ($ millions)

Profit Center	Revenue	Expenditures
Undergraduate liberal arts school	$30.0	$29.2
Graduate liberal arts school	5.6	11.5
Business school	15.3	12.3
Engineering school	17.0	17.3
Law school	6.7	6.5
Theological school	1.2	3.4
Unallocated revenue*	5.0	
Total academic	80.8	80.2
Other		
Central administration	10.1	10.1
Athletic	2.6	2.6
Computer	3.4	3.4
Central maintenance	5.7	5.7
Library	3.4	3.4

*Unrestricted gifts and endowment revenue, to be allocated by the president.

Central Administrative Costs

Currently, no universitywide administrative costs were charged to academic departments. The proposal was that these costs would be allocated to profit centers in proportion to the relative costs of each. The graduate school deans regarded this as unfair. Many costs incurred by the administration were in fact closely related to the undergraduate school. Furthermore, they did not like the idea of being held responsible for an allocated cost that they could not control.

Gifts and Endowment

The revenue from annual gifts would be reduced by the cost of fund-raising activities. The net amount of annual gifts plus endowment income (except gifts and income from endowment designated for a specific school) would be allocated by the president, according to his decision on the needs of each school, subject to the approval of the board of trustees. The deans thought this was giving the president too much authority. They did not have a specific alternative but thought that some way of reducing the president's discretionary powers should be developed.

Athletics

Piedmont's athletic teams did not generate enough revenue to cover the cost of operating the athletic department. The proposal was to make this department self-sufficient by charging fees to students who participated in intramural sports or who used the swimming pool, tennis courts, gymnasium, and other facilities as individuals. Although there was no strong opposition, some felt that this would involve student dissatisfaction, as well as much new paperwork.

P.T.O.

Maintenance

Each school had a maintenance department that was responsible for housekeeping in its section of the campus and for minor maintenance jobs. Sizable jobs were performed at the school's request by a central maintenance department. The proposal was that in future the central maintenance department would charge schools and other profit centers for the work they did at the actual cost of this work, including both direct and overhead costs. The dean of the business school said that this would be acceptable provided that profit centers were authorized to have maintenance work done by an outside contractor if its price was lower than that charged by the maintenance department. Malcolm explained that he had discussed this possibility with the head of maintenance, who opposed it on the grounds that outside contractors could not be held accountable for the high-quality standards that Piedmont required.

Computer

Currently, the principal mainframe computers and related equipment were located in and supervised by the engineering school. Students and faculty members could use them as they wished, subject to an informal check on over-use by people in the computer rooms. About one quarter of the capacity of these computers was used for administrative work. A few departmental mainframe computers and hundreds of microcomputers and word processors were located throughout the university, but there was no central record of how many there were.

The proposal was that each user of the engineering school computers would be charged a fee based on usage. The fee would recover the full cost of the equipment, including overhead. Each school would be responsible for regulating the amount of cost that could be incurred by its faculty and students so the total cost did not exceed the approved item in the school's budget. (The computers had software that easily attributed the cost to each user.) Several deans objected to this plan. They pointed out that neither students nor faculty understood the potential value of computers, and they wanted to encourage computer usage as a significant part of the educational and research experience. A charge would have the opposite effect, they maintained.

Library

The university library was the main repository of books and other material, and there were small libraries in each of the schools. The proposal was that each student and faculty member who used the university library would be charged a fee, either on an annual basis or on some basis related to the time spent in the library or the number of books withdrawn. (The library had a secure entrance at which a guard was stationed, so a record of who used it could be obtained without too much difficulty.) There was some dissatisfaction with the amount of paperwork that such a plan would require, but it was not regarded as being as important as some of the other items.

Cross Registration

Currently, students enrolled at one school could take courses at another school without charge. The proposal was that the school at which a course was taken would reimburse the school in which the student was enrolled. The amount charged would be the total semester tuition of the school at which the course was taken, divided by the number of courses that a student normally would take in a semester, with adjustments for variations in credit hours.

Questions

1. How should each of the issues described above be resolved?
2. Do you see other problems with the introduction of profit centers? If so, how would you deal with them?
3. What are the alternatives of a profit center approach?
4. Assuming that most of the issues could be resolved to your satisfaction, would you recommend that the profit center idea be adopted, rather than an alternative?