

Answers to questions are to be given only in English

Question No. 1 is compulsory

Candidates are required to answer any four questions from the remaining five questions.

Working notes should form part of the answer.

Q.1 Framiltone is a food manufacturer based in Ceeland, whose objectives is to maximize shareholder wealth. Framiltone has two divisions; Dairy division and Luxury division. Framiltone began manufacturing dairy food 20 years ago and Dairy division, representing 60% of total revenue, is still the larger of two Framiltone's divisions.

Dairy Division

This division manufactures cheeses and milk – based deserts. The market in Ceeland for these products is saturated, with little opportunity for growth. Dairy division has, however, agreed profitable fixed price agreements to supply all the major supermarket chains in Ceeland for the next three years. The division has also agreed long – term fixed volume and price contracts with suppliers milk, which is by far the most significant raw material used by the division.

In contrast to Luxury division, Dairy division does not operate its own fleet of delivery vehicles, but instead subcontracts this to a third party distribution company. The terms of the contract provide that the distribution company can pass on some increases in fuel costs to Framiltone. These increases are capped at 0.5% annually and are agreed prior to the finalisation of each year's budget.

Production volumes have shown less than 0.5% growth over the last five years. Dairy division managers have invested in modern production plant and its production is known to be the most efficient and consistent in the industry.

Luxury Division

This division was set up two years ago to provide in opportunity for growth which is absent from the dairy foods sector. Luxury division produces high quality foods using unusual, rare and expensive ingredients, many of which are

imported from neighbouring Veeland. The product range changes frequently according to consumer tastes and the availability and price of ingredients. All Luxury division's products are distributed using its own fleet of delivery vehicles. Since the company began, Framiltone has used a traditional incremental budgeting process. Annual budgets for each division are set by the company's head office after some consultation with division managers, who currently have little experience of setting their own budgets. Performances of each division, and of divisional managers, is appraised against these budgets. For many years, Framiltone managed to achieve the budgets set, but last year managers at Luxury division complained that they were unable to achieve their budget due to factors beyond their control. A wet growing season in Veeland had reduced the harvest of key ingredients in Luxury's products, significantly increasing their cost. As a result, revenue and gross margins fell sharply and the division failed to achieve its operating profit target for the year.

Framiltone has just appointed a new CEO at the end of Q1 of the current year. He has called you as a performance management expert for your advice.

In my last job in the retail fashion industry, we used rolling budgets, where the annual budget was updated to reflect the results of every quarter's trading. That gives a more realistic target, providing a better basis on which to appraise divisional performance. Do you think we should use a similar system for all divisions at Framiltone? He asked.

You have obtained the current year for Luxury division and the division's Q1 actual trading results (Appendix) and notes outlining expectations of divisional key costs and revenues for the rest of the year (Appendix 2)

Appendix 1

Luxury division current year budget

C\$000	Q1	Q2	Q3	Q4	Total	Q1 Actual
Revenue	10,0000	12,000	11,000	7,000	40,000	10,400
Cost of Sales	(6,100)	(7,120)	(6,460)	(4,720)	(24,000)	(6,240)
Gross Profit	3,900	4,880	4,540	2,280	15,600	4,160
Distribution Costs	(600)	(720)	(660)	(420)	(2,400)	(624)
Administrative Costs	(2,300)	(2,300)	(2,300)	(2,300)	(9,200)	(2,296)
Operating Profit	1,000	1,860	1,580	(440)	4,000	1,240

Appendix 2**Expected key costs and revenues for remainder of the current year**

1. Sales volumes are expected to be 2% higher each quarter than forecast in the current budget.
2. Average selling price per unit is expected to increase by 1.5% from the beginning of Q3.
3. The exchange rate between the Ceeland Dollar (C\$) and the Veeland Dollar (V\$) is predicted to change at the beginning of Q2 to C\$1.00 buys V\$1.50. For several years up to the end of Q1, C\$1.00 has been equivalent to V\$1.40 and this exchange rate has been used when producing the current year budget. Food produced in the Luxury division is despatched immediately upon production and Framiltone holds minimal inventory. The cost of ingredients imported from Veeland represents 50% of the division's cost of sales and suppliers invoice goods in V\$.
4. The rate of tax levied by the Ceeland government on the cost of fuel which Luxury uses to power its fleet of delivery vehicles is due to increase from 60%, which it has been for many years, to 63% at the beginning of quarter 3. 70% of the division's distribution costs are represented by the cost of fuel for delivery vehicles.
5. The CEO has initiated a programme of overhead cost reductions and savings of 2.5% from the budgeted administration costs are expected from the beginning of Q2, Q3 administration costs are expected to be a further 2.5% lower than in Q2, with a further 2.5% saving in Q4 over the Q3 costs.

Required:

- (a) Using the data in the appendices, recalculate the current year budget to the end of the current year and briefly comment on the overall impact of this on the expected operating profit for the year.
(10 Marks)
- (b) Evaluate whether a move from traditional budgeting to a system of rolling budgets would be appropriate for Dairy and Luxury divisions.
(10 Marks)

Q.2 Posie is a large business which manufactures furniture. It is made up of two autonomous divisions in Deeland. The manufacturing division purchases raw materials from external suppliers, and performs all manufacturing and packaging operations. All sales are made through the retail division which has 95 retail stores in Deeland, as well as through Posie's own well – developed website. Posie has retail operations in eight other countries as well as in Deeland. These overseas businesses operate as independent subsidiaries within the Retail Division, each with their own IT and accounting functions.

The furniture is sold in boxes for customers to assemble themselves. About 10% of the products sold by Posie are purchased already packaged from other manufacturers. All deliveries are outsourced through a third party distribution company.

Posie's corporate objective is to maximise shareholder wealth by producing 'attractive, functional furniture at low prices'. This is how customers generally perceive the Posie brand. The CEO of Posie is concerned about increasing levels of returns made by customers and increasing numbers of consumers complaining on online forums about products purchased from Posie. Concerned about the impact on the Posie brand and the cost – leadership strategy, the CEO has asked you as a performance management expert to help Posie implement the six sigma technique to reduce the number of products returned and in particular to define customers' requirements and measure Posie's existing performance. The production director has been appointed to sponsor the project and you will be supported by a small team of managers who have recently received training in six sigma. The board member responsible for manufacturing quality recently resigned because she thought it was unfair that the manufacturing division was being held responsible for the increased level of customer returns.

You have been given access to some information concerning the reasons why customers return goods to help you measure existing performance in this area (Appendix 1). This is an extract from the management reporting pack presented to the board at their monthly meetings. The returns data, however, are only compiled every six months due to the lengthy analysis required of data from Posie's overseas retail operations. It is included twice a year in the board report along with the KP is for customer satisfaction.

The last time this information was produced 93% of customers indicated they were satisfied with the quality of the manufacture of Posie's products.

The CEO has heard that six sigma requires 'large amounts of facts and data'. He suggested that the returns data contain insufficient detail and that as part of your project you may need to do more analysis, for example, on why customers are not satisfied with the manufacturing quality.

He also added, 'I am not sure that our current IT systems are capable of generating the data we need to identify which responsibility centres within the manufacturing division are the root causes of the problem of customer returns. We are planning to change the designation of the overseas retail businesses from profit centres to revenue centres, but again we need to know first how this will affect the information requirements of the business and any potential problems with doing so'.

Appendix 1

Reasons given by customers for returning goods

Category	Reason for Return of Goods	% Responses
1	Difficult to assemble or pieces missing	48%
2	Goods arrived damaged	14%
3	Goods were not as described or were defective	25%
4	Goods were of poor quality or no longer wanted	11%
5	Arrived Late	2%
	Total	100%

(a) Advise the board how the six sigma project at Posie to reduce returns from customers could be implemented using DMAIC methodology.

(12 Marks)

(b) Evaluate the impact on Posie's information requirements arising from:

(i) The need to identify and improve on the level of customer returns.

(4 Marks)

(ii) The proposed re-designation of the overseas subsidiaries from profit centres to revenue centres.

(4 Marks)

Q.3 (a) 'EAJ', which commenced trading on 1 June 20X3, is a business services group whose consultant's implements three types of application software packages designed to meet the accounting distribution and manufacturing requirements of its clients. Each consultant specialises in the implementation of one type of application software i.e. accounting, distribution or manufacturing of one type of application software packages. EAJ implements application software packages but clients are responsible for purchasing the packages.

At a recent CPD course the Finance Director learnt about the performance pyramid and wishes to use the perspectives as part of the performance management system within EAJ.

The following information relates to the year ended 31st May, 20X6.

1. Each consultation, other than those detailed in notes (4) and (5), is charged at a rate of ₹700 per day for new clients and ₹550 per day for existing clients. Consultants are budgeted to work for 240 days per year.
2. The consultants are each paid a fixed annual salary of ₹50,000. In addition they receive a bonus of 40% of the net value of the fee income generated in excess of budget minus the revenue foregone as a consequence of undertaking remedial consultations (per notes 5 and 8) based on a 'notional' rate of ₹700 per consultant day. The bonus is share equally among the consultants employed by EAJ on 31 May in the year to which the bonus relates.
3. Other operating expenses (excluding the salaries of the consultants) were budgeted at ₹36,00,000. The actual amount incurred was ₹45,00,000.
4. In an attempt to gain new business, consultants may undertake consultations on a 'no – free' basis. Such consultations are regarded as business development activity by the management of EAJ. Each of these consultation is budgeted to take one consultant day.
5. Consultants will sometimes undertake remedial consultation with new clients who experience problems with regard to implementation. Remedial consultations are also provide on a non-chargeable, i.e. 'no fee' basis. Each of these consultations requires two consultant days.

6. Since its formation EAJ has had a policy of maintaining staff at a level of 100 consultants on an on-going basis, irrespective of fluctuations in the level of demand.
7. EAJ has a help desk which provides support to its client base.
8. Sundry statistics for the year ended 31st May, 20X6 together with other statistics for the previous two years are as follows:

	Budget	Actual
Number of consultants by category:		
Accounting	40	40
Distribution	30	25
Manufacturing	30	35
Total client enquiries (in days):		
New Clients	<u>12,000</u>	<u>15,000</u>
Existing Clients	25,200	24,500
Number of chargeable client days:		
New Clients	4,200	4,500
Existing Clients	12,600	14,700
Mix of chargeable client days:		
Accounting	6,720	8,480
Distribution	5,040	4,000
Manufacturing	5,040	6,720

Other statistics (all stated on an ACTUAL basis) relating to the years ended 31st May 20X4 – 20X6 are as follows:

	2004	2005	2006
Number of Clients	320	500	700
Number of Client complaints:	160	225	280
Number of on – time implementations (%)	92%	96%	99%
Implementation time per application (days)	3.0	2.5	2.0
Number of accounts in dispute	20	15	10
% of support desk calls resolved	85%	95%	99%
Chargeable client days	16,800	18,000	19,200
Number of business development consultations	100	200	300

Number of remedial consultations (New Client)	310	380	450
Turnover (₹000)	4,000	7,500	?
Net Profit (₹000)	600	900	?

Required:

Using the above information, analyse and discuss the performance of EAJ for the year ended 31st May 20X6 under the following headings:

- (i) Financial performance and competitiveness
 - (ii) External effectiveness
 - (iii) Internal efficiency
- (b) Discuss the limitations of performance management which is based purely on quantitative information. Identify issues which an organization needs to consider when working with qualitative information.

(20 Marks)

- Q.4 (a)** Telecoms At work (TAW) manufactures and markets office communications systems. During the year ended 31 May 2008 TAW made an operating profit of ₹ 30 million on sales of ₹ 360 million. However, the directors are concerned that products do not conform to the required level of quality and TAW is therefore not fulfilling its full potential in terms of turnover and profits achieved.

The following information is available in respect of the year ended 31 May 2008:

1. Production data:

Units manufactured and sold	18,000
Units requiring rework	2,100
Units requiring warranty repair service	2,700
Design engineering hours	48,000
Process engineering hours	54,000
Inspection hours (manufacturing)	2,88,000

2. Cost data

	₹
Design engineering per hour	96
Process engineering per hour	70

Inspection per hour (manufacturing)	50
Rework per communication system reworked (manufacturing)	4,800
Customer support per repaired unit (marketing)	240
Transportation costs per repaired unit (distribution)	280
Warranty repairs per repaired unit (customer service)	4,600

3. Staff training costs amounted to ₹ 1,80,000 and additional product testing costs of ₹ 72,000.
4. The marketing director has estimated that sales of 1,800 units were lost as a result of public knowledge of poor quality at TAW. The average contribution per communication system is estimated at ₹ 7,200.

Required:

- (a) Prepare a cost analysis which shows actual prevention costs, appraisal costs, internal failure costs, and external failure costs for the year ended 31 May 2008. Your statement should show each cost heading as a % of turnover and clearly show the total cost of quality. Comment briefly on the inclusion of opportunity costs in such an analysis.

(10 Marks)

- Q.4 (b)** A company manufactures four components (L, M, N and P) which are incorporated into different products. All the components are manufactured using the same general purpose machinery. The following production cost and machine hour data are available, together with the purchase prices from an outside supplier.

Production Cost	L	M	N	P
	₹	₹	₹	₹
Direct material	12	18	15	8
Direct labour	25	15	10	8
Variable overhead	8	7	5	4
Fixed overhead	10	6	4	3
Total	55	46	34	23
Machine hours per unit	₹ 57	₹ 55	₹ 54	₹ 50
	Hours	Hours	Hours	Hours
Machine Hours per unit	3	5	4	6

Manufacturing requirements show a need for 1,500 units of each component per week. The maximum number general purpose machinery hours available per week is 24,000.

What number of units should be purchased from the outside supplier?

(10 Marks)

Q.5 (a) PLX Refinery Co is large oil refinery business in Kayland. Kayland is a developing country with a large and growing oil exploration and production business which supplies PLX with crude oil. Currently, the refinery has the capacity to process 2,00,000 barrels of crude oil per day and makes profits of ₹ 146m per year. It employs about 2,000 staff and contractors. The staff are paid ₹ 60,000 each per year on average (about twice the national average in Kayland). PLX has had a fairly good compliance record in Kayland with only two major fines being levied in the last eight years for safety breaches and river pollution (₹ 1 m each).

The government of Kayland has been focused on delivering rapid economic growth over the last 15 years. However, there are increasing signs that the environment is paying a large price for this growth with public health suffering. There is now a growing environmental pressure group, Green Kayland (GK), which is organising protests against the companies that they see as being the major polluters.

Kayland's government wishes to react to the concerns of the public and the pressure groups. It has requested that companies involved in heavy industry contribute to a general improvement in the treatment of the environment in Kayland.

As a major participant in the oil industry with ties to the nationalised oil exploration company (Kayex), PLX believes it will be strategically important to be at the forefront of the environmental developments. It is working with other companies in the oil industry to improve environmental reporting since there is a belief that this will lead to improved public perception and economic efficiency of the industry. PLX has had a fairly good compliance record in Kayland with only two major fines being levied in the last eight years for safety breaches and river pollution (₹1m each).

The existing information systems within PLX focus on financial performance. They support financial reporting obligations and allow monitoring of key performance metrics such as earnings per share and operating margins. Recent publications on environmental accounting have suggested there are a number of techniques (such as activity-based costing (ABC), a lifecycle view and flow cost accounting) that may be relevant in implementing improvements to these systems.

PLX is considering a major capital expenditure programme to enhance capacity, safety and efficiency at the refinery. This will involve demolishing certain older sections of the refinery and building on newly acquired land adjacent to the site. Overall, the refinery will increase its land area by 20%.

Part of the refinery extension will also manufacture a new plastic, Kayplas. Kayplas is expected to have a limited market life of five years when it will be replaced by Kayplas2.

The refinery accounting team have forecast the following data associated with this product and calculated PLX's traditional performance measure of product profit for the new product:

All figures are ₹m's

	2012	2013	2014	2015	2016
Revenue Generated	25.0	27.5	30.1	33.2	33.6
Costs					
Production Costs	13.8	15.1	16.6	18.3	18.5
Marketing Costs	5.0	4.0	3.0	3.0	2.0
Development Costs	5.6	3.0	0.0	0.0	0.0
Product Profit	0.6	5.4	10.5	11.9	13.1

Subsequently, the following environmental costs have been identified from PLX's general overheads as associated with Kayplas production

	2012	2013	2014	2015	2016
Waste filtration	1.2	1.4	1.5	1.9	2.1
Carbon dioxide exhaust extraction	0.8	0.9	0.9	1.2	1.5

Additionally, other costs associated with closing down and recycling the equipment in Kayplas production are estimated at ₹18m in 2016.

The board wishes to consider how it can contribute to the oil industry's performance in environmental accounting, how it can implement the changes that this might require and how these changes can benefit the company.

Required:

(1) Discuss and illustrate four different cost categories that would aid transparency in environmental reporting both internally and externally at PLX.

(7 Marks)

(2) Explain and evaluate how the three management accounting techniques mentioned can assist in managing the environmental and strategic performance of PLX.

(7 Marks)

Q.5 (b) A company sets its sales budget based on an average price of ₹ 14 per unit and sales volume of 2,50,000 units. Competition was more intense than expected and the company only achieved sales of 2,20,000 and had to sell at a discounted price of ₹ 12.50 per unit. The company was unable to reduce costs so profit per unit fell from ₹ 4 per unit to ₹ 2.50 per unit. It was estimated that the total market volume grew by 10% from 10,00,000 units to 11,00,000 units.

Required:

(a) Calculate the sales price and volume variances.

(b) Analyse the volume variances into market share and market size.

(c) Discuss whether the price variance is a planning or operational variance.

(6 Marks)

Q.6 (a) Chapel Ltd manufactures a chemical protective called Rustnot. The following standard costs apply for the production of 100 cylinders;

		₹
Materials	500 KGS @ ₹ 0.80 per kg	400
Labour	20 hours @ ₹ 1.50 per hour	30
Fixed overheads	20 hours @ ₹ 1.00 per hour	20
		450

The monthly production/sales budget is 10,000 cylinders

Selling Price = ₹ 6 per cylinder.

For the month of November the following production and sales information is available:

Produced / sold	10,600 Cylinders
Sales Value	₹ 63,000
Materials purchased and used 53,200 kgs	₹ 42,500
Labour 2,040 hours	₹ 3,100
Fixed overheads	₹ 2,200

Required:

You are required to prepare an operating statement in a marginal costing format for November detailing all the variances.

(8 Marks)

Q.6 (b) The following details relate to a new product that has finished development and is about to be launched.

	Development	Launch	Growth	Maturity	Decline
Time period	Finished	1 year	1 year	1 year	1 year
R & D Costs (₹ m)	20				
Marketing Costs (₹ m)		5	4	3	0.90
Production Cost Per unit (₹)		1.00	0.90	0.80	0.50
Production Volume		1m	5m	10m	4m

The launch price is proving a contentious issue between managers. The marketing manager is keen to start with a low price of around ₹ 8 to gain new buyers and achieve target market share. The accountant is concerned that this does not cover costs during the launch phase and has produced the following schedule to support this:

Launch Phase:		₹ million
Amortised R & D Costs	(20 ÷ 4)	5.0
Marketing Costs		5.0
Production Costs	(1 million x ₹ 1 per unit)	1.0
Total		11.0
Total Production (Units)		1 Million
Cost Per Unit		₹ 11.00

Prepare a revised cost per unit schedule looking at the whole lifecycle and comment on the implications of this cost with regards to the pricing of the product during the launch phase.

(6 Marks)

Q.6 (c) Find the linear relationship between price (P) and the quantity demanded (Q). i.e. find the straight-line demand equation, in relation to the following sales and demand data:

- Selling price of ₹ 200 = sales of 1,000 units per months.
- Selling price of ₹ 220 = sales of 950 unit per month.

Required:

- Use this equation to predict the quantity demanded per month if the selling price is ₹ 300.
- Using the price equation in (a) and assuming the variable cost per unit is ₹ 100, calculate the optimum price and output.
- Calculate the maximum contribution.

(6 Marks)