

**CMA DECEMBER, 2019 EXAMINATION
OPERATIONAL LEVEL
SUBJECT: P1. PERFORMANCE OPERATIONS**

Time Allocated: Three hours

Total Marks: 100

Instructions to Candidates

| There are three sections (that is A, B & C) in this paper. You are required to answer ALL questions. | | | |
|---|--------------------------------|------------------------------------|------------------|
| Answers should be properly structured, relevant and computations need to be shown wherever necessary. | | | |
| You are strongly advised to carefully read ALL the question requirements before attempting the question concerned (that is all parts and/or sub-questions). | | | |
| ALL answers must be written in the answer book. Answers written on the question paper will not be submitted for marking. | | | |
| Start answering each question from a fresh sheet. Your answers should be clearly numbered with the sub-question number then ruled off, so that the markers know which sub-question you are answering. | | | |
| Section | No of questions in the Section | No of sub-questions in the Section | Marks allocation |
| A | 01 | 08 | 20% |
| B | 01 | 05 | 30% |
| C | 02 | | 50% |

TURN OVER

SECTION A – 20 MARKS

This section consists of 1 question and 8 sub-questions.

You are advised to spend no longer than 36 minutes on this section. Section will carry 20 marks and one sub-question will carry 2.5 marks each.

Question 01

- (a) What is just-in-time (JIT) system? List out its main benefits. **(2 ½ Marks)**
- (b) Under absorption costing, how is it possible to increase net operating income without increasing sales? **(2 ½ Marks)**
- (c) Sunk cost is irrelevant cost. Explain this statement with a hypothetical example. **(2 ½ Marks)**
- (d) What type of costs should not be assigned to products in an Activity-Based Costing System? **(2 ½ Marks)**
- (e) Why sensitivity analysis is useful when dealing with uncertainty in project appraisal. **(2 ½ Marks)**
- (f) State in short, the reasons for the use of predetermined rates for factory overheads absorption. **(2 ½ Marks)**
- (g) What types of companies can use commercial paper to meet their short-term financing needs? **(2 ½ Marks)**
- (h) Define days sales outstanding (DSO). What can be learned from it? **(2 ½ Marks)**

END OF SECTION A

SECTION B Starts on page 3

Section B

This section consists of 1 question and 5 sub-questions.

You are advised to spend no longer than 9 minutes on each sub-question in this section. Section will carry 30 marks and one sub-question will carry 6 marks each.

Question 02

- (a) ABC is preparing its cash budgets for October, November and December.

Budgeted data are as follows:

| | August | September | October | November | December |
|---|------------|------------|------------|------------|-------------|
| Sales (Units) | 1500 | 1600 | 1600 | 1700 | 1800 |
| Production (Units) | 1600 | 1600 | 1700 | 1800 | 1900 |
| Direct labour and variable overheads incurred | Tk. 96,000 | Tk. 96,000 | Tk.102,000 | Tk.108,000 | Tk. 114,000 |
| Fixed overheads incurred (excluding depreciation) | Tk. 40,000 |

The selling price per unit is Tk. 200. The purchase price per kg of raw material is Tk. 25. Each unit of finished product requires 2 kg of raw materials which are purchased on credit in the month before they are used in production. Suppliers of raw materials are paid one month after purchase.

All sales are on credit. 75% of customers, by sales value, pay one month after sales and the remainder pay two months after sale.

The direct labour cost, variable overheads and fixed overheads are paid in the month in which they are incurred.

Machinery costing Tk. 200,000 will be delivered in November and paid for in December.

Depreciation, including that on the new machinery, is as follows:

| | | |
|-------------------------|-----------|-----------|
| Machinery and Equipment | Tk. 4,500 | per month |
| Motor vehicles | Tk. 1,000 | per month |

The opening cash balance at October is estimated to be Tk. 20,000.

Required:

Prepare a cash budget for each of the three months October, November and December.

[Marks: 6]

- (b) A company is estimating the future profit from a new product. For each of the variables, the amount and the probability of the occurrence is given below:

| | |
|------------------------------|--------------------|
| Number of units sold | Probability |
| 120,000 | 40% |
| 100,000 | 60% |
| Contribution per unit | Probability |
| Tk. 7.00 | 50% |
| Tk. 5.00 | 50% |
| Fixed costs | Probability |
| Tk. 450,000 | 30% |
| Tk. 600,000 | 70% |

SECTION B Continues on page 4

Required:

- (i) Prepare a table which shows all the possible outcomes, their associated probability and the expected value of the profit from the new product.
- (ii) Calculate the probability of the new product achieving each of the following:
- a profit
 - a loss
 - break-even

[Marks: (3+3) = 6]

- (c) XYZ company uses a material 24,000 units per year for which cost of placing one order is Tk. 40.00, unit carrying cost is Tk. 96.00 and carrying cost percentage is 10%. The company follows JIT inventory system and the order size may be from 600 to 900 units in multiples of 100.

You are required to determine the purchase order quantity that will minimize cost by tabular method. Apply EOQ formula to prove your answer.

[Marks: 6]

- (d) Sharaf Investment Inc. invests Tk. 100,000, and proposes to make exclusive rocking chairs for 10 years. The company will plan to make 250 chairs per annum, earning a contribution of Tk.151 per chair. Fixed costs are expected to be Tk.17,500 per annum and the scrap value of machinery after 10 years is forecast at Tk.10,000. Ignore tax and writing down allowances, and use a discount rate of 15%.

Required:

Calculate the NPV and the sensitivity to the:

- initial investment • volume • contribution • fixed costs • scrap.

[Marks: 6]

- (e) Sports Bicycle Shop has decided to offer credit to its customers during the spring selling season. Sales are expected to be 400 bicycles. The average cost to the shop of a bicycle is Tk. 2,800. The owner knows that only 97 percent of the customers will be able to make their payments. To identify the remaining 3 percent, she is considering subscribing to a credit agency. The initial charge for this service is Tk. 5,000, with an additional charge of Tk. 40 per individual report. Should she subscribe to the agency?

[Marks: 6]

END OF SECTION B

SECTION C Starts on page 5

Section C

This section consists of 2 questions.

You are advised to spend no longer than 45 minutes on each question in this section. Section will carry 50 marks (each question carries 25 marks) and allocation of marks for each sub-question is indicated next to the sub-question.

Question 03

A restaurant company is considering further investment in order to increase its seating capacity. The company prepares its accounts at 31 December each year and, if accepted, the proposed investment would be made on 1 January 2019, and will become operational immediately.

Based on the actual results for the year to date, the latest forecast income statement for the company for the year to 31 December 2018 is as follows:

| | Tk. | Tk. |
|--------------|----------------|----------------|
| Food sales | 180,000 | |
| Drink sales | <u>150,000</u> | 330,000 |
| Food costs | 125,000 | |
| Drink costs | 70,000 | |
| Staff costs | 55,000 | |
| Other costs* | <u>45,000</u> | <u>295,000</u> |
| Profit | | <u>35,000</u> |

* These other costs include rent, light & heat, power and administration overheads. 30% of these costs vary in proportion to the value of sales and the remainder are fixed costs.

The proposed investment

At present the restaurant is not able to exploit the growing demand from customers because it does not have sufficient seating capacity. The restaurant is considering the investment of Tk. 40,000 on January 2019. It is expected that this will increase the seating capacity of the restaurant by 30% compared to the present level. The lease of the current business premises ends at the end of 2022. At that time the Tk. 40,000 investment will have no residual value. Of this total investment, Tk. 30,000 will qualify for 100% tax depreciation in 2019 and the remainder will qualify for 20% tax depreciation per year, commencing in 2019, calculated on a reducing balance basis. Any balancing tax charge will be made or allowance will be available at the end of 2022.

Sales

It is expected that the additional sales of food and drink will be proportional to the seating capacity increase and that the mix of food sales and drink sales will not change.

Costs

It is expected that apart from the effects of inflation (see below):

Food costs and drink costs will continue to be the same percentages of food sales and drink sales as they are in the forecast income statement shown above.

Staff costs are step costs and are expected to increase by 20% from their forecast value for 2018 if there is any capacity increase.

The variable element of other costs is expected to increase in proportion to the capacity increase; the fixed cost element is expected to increase by Tk. 10,000 if there is any capacity increase.

Inflation

Cost inflation is predicted to be 4% per annum for each of the years 2019 to 2022 whereas selling price are only expected to increase by 3% per annum during the same period.

SECTION C Continues on page 6

Taxation

The company pays tax on its profits at 20%. This is payable one year after the profit is earned.

Cost of capital

The company's post tax money cost of capital for evaluating the investment is 8% per annum.

Required:

- Prepare calculations to show whether the investment is worthwhile assuming that the 30% increase in seating capacity is fully utilized and recommend whether the investment should proceed.
- Calculate and interpret the Internal Rate of Return (IRR) of the proposed investment.
- Calculate the sensitivity of your recommendation to changes in the percentage capacity utilization.

[Marks: (14+6+5) = 25]

Question 04

NGF Corporation produces a single product RMG. The company operates a standard absorption costing system and a just-in-time purchasing system. Standard production cost details per unit of product RMG are:

| | |
|--|------------|
| Materials (5 kg at Tk.20 per kg) | Tk.100 |
| Labour (4 hours at Tk.10 per hr) | 40 |
| Variable overheads (4 hours at Tk.5 per hr) | 20 |
| Fixed overheads (4 hours at Tk.12.50 per hr) | <u>50</u> |
| | <u>210</u> |

Fixed and variable overheads are absorbed on the basis of labour hours. Budget data for product RMG for November are detailed below:

| | |
|----------------------|------------------|
| Production and sales | 1,400 units |
| Selling price | Tk. 250 per unit |
| Fixed overheads | Tk. 70,000 |

Actual data for product RMG for November are as follows:

| | |
|----------------------|------------------------------|
| Production and sales | 1,600 units |
| Selling price | Tk. 240 per unit |
| Direct materials | 7,300 kg costing Tk.153,300 |
| Direct labour | 5,080 hours at Tk.9 per hour |
| Variable overheads | Tk. 25,400 |
| Fixed overheads | Tk. 74,000 |

Required:

- Produce a statement that reconciles the budgeted and actual gross profit for product RG for November showing the variances in as much detail as possible.
- The following details have been extracted from the company's accounting records for December.

| | <u>Budget</u> | <u>Actual</u> |
|---------------|---------------|---------------|
| Output of RMG | 800 units | 890 units |
| Materials | 4,000kg | 4,375kg |
| Cost per kg | Tk.20.00 | Tk.21.60 |

SECTION C Continues on page 7

It has now been realized that the standard cost per kg of the material should have been Tk.20.90.

Calculate the following materials variances for December:

- (i) The total materials cost variance.
 - (ii) The planning variance for materials price.
 - (iii) The operational variances for materials price and materials usage.
- (c) Discuss three advantages of using a standard costing system that identifies both planning and operational variances.

[Marks: (13+6+6) = 25]

End of the Exam Paper