The Institute of Chartered Accountants of Pakistan

Certificate in Accounting and Finance Stage Examination

5 March 2020
3 hours – 100 marks
Additional reading time – 15 minutes

Cost and Management Accounting

Instructions to examinees:
(i) Answer all **SEVEN** questions.
(ii) Answer in black pen only.

Q.1 Venus Limited (VL) is engaged in the business of processing and selling cashew nuts. It purchases raw cashew nuts which are then processed and packaged before selling to consumers.

VL uses standard costing system. The standard cost card for the month of February 2020 is given below:

Standard cost card per tonne of processed cashew nuts

Direct material	1.75 tonnes of raw cashew nuts at Rs. 50,000 per tonne.
Direct labour	8 hours at Rs. 300 per hour (idle time is estimated at 5% of total time).
Fixed production overhead	Rs. 275 per direct labour hour for budgeted production of 17,500 tonnes of processed and packaged cashew nuts.

Actual results for the month of February 2020:

(i) 17,050 tonnes were produced.
(ii) 31,500 tonnes of direct material at Rs. 46,500 per tonne were purchased and consumed during the month.
(iii) Each tonne of processed cashew nuts took 7 hours to produce and direct labour was paid at Rs. 375 per hour.
(iv) Scheduled maintenance of machine was not carried out which reduced the idle time to 4%.
(v) Fixed production overhead amounting to Rs. 32 million was incurred during the month.

VL's actual profit for the month of February 2020 was higher than the budgeted profit. Views of three department heads on high profitability are as follows:

- **Head of purchase department**
  Despite stable prices of raw cashew nuts in the market for last three years, his department has saved significant cost by purchasing material from a new supplier at a relatively cheaper rate by good negotiations. This contributes significantly to the increase in VL's profitability.

- **Head of production department**
  His team's decision to increase labour rate has resulted in an increased motivation and overall efficiency of workers which led to the increase in VL's profitability.

- **Head of maintenance department**
  Delaying the scheduled maintenance of machines has contributed to VL's profitability. The machines are running well, therefore, scheduled maintenance can be delayed for another month.

Required:

(a) Calculate the following variances for the month of February 2020:

- All material variances
- All labour variances
- Fixed production overhead expenditure variance **(08)**

(b) Critically evaluate the views of departmental heads. Your evaluation should include the discussion of claims made and likely impact of their decisions on the long-term profitability of VL. **(07)**

Q.2 Neo Hardware (Private) Limited (NHPL) is engaged in the manufacturing and marketing of a single product 'locks'. NHPL is in the process of preparing its budgeted profit or loss statement for the year ending 28 February 2021. Following information pertains to the year ended 29 February 2020:

(i) Extracts from profit or loss statement:

	Rs. in million
Sales	6,930
Cost of goods sold:	
Material	(3,140)
Labour	(645)
Manufacturing overheads	(960)
Gross profit	2,185
Selling expenses (55% variable)	(468)
Administration expenses	(276)
Net profit before tax	**1,441**

(ii) The production plant at NHPL factory has an annual production capacity of 6 million locks. During the year, it operated at 77% of capacity and all locks produced during the year were sold out.

(iii) During the year, NHPL had received a quotation from a Chinese company at Rs. 1,400 per lock, similar to NHPL's locks. Since the production target for the year had already been met, the management decided to keep this option open for any future shortfall in production.

(iv) NHPL has divided the sales team in three regions i.e. East, West and Central with 20, 24 and 46 sales personnel in each region respectively. During the year, the ratio of each region's sales to total sales was 20%, 30% and 50% respectively.

(v) Manufacturing overheads include fixed overheads of Rs. 625 million which include depreciation of Rs. 415 million.

(vi) Administration expenses comprised of fixed costs including depreciation of Rs. 23 million.

Information and projections for the budget year ending 28 February 2021

(i) Selling price would be increased by Rs. 150 per lock.

(ii) It is anticipated that sales volume will increase by 25% and in order to achieve this target, sales commission would be introduced to motivate the sales personnel. However, the commission would be paid on regional teams' performances and the rate of commission would be determined on the basis of average number of units sold by each team member as follows:

Average number of locks sold by a sales person	**Commission % on regional sale revenue**
0 – 50,000	1.00%
50,001 – 70,000	1.25%
70,001 – 90,000	1.50%
> 90,000	1.75%

(iii) It is expected that East, West and Central will contribute to the increase in sales volume by 10%, 30% and 60% respectively.
(iv) The price of locks from the Chinese company is expected to increase to Rs. 1,500 per lock.
(v) Labour is short in supply and already working overtime. The increase in production can only be achieved by increasing efficiency of the existing labour. The management has approved 20% bonus for labour which would increase the efficiency by 15%.
(vi) At the beginning of the year, a major overhaul amounting to Rs. 55 million will be carried out on one of the machines in a manufacturing department which was originally purchased in 2018 for Rs. 100 million. The overhauling would increase the original useful life of machine from 4 years to 8 years and salvage value would increase from Rs. 12 million to Rs. 15 million. The company uses straight line method for depreciating its machines.
(vii) All variable costs would increase by 8% and all fixed costs other than depreciation would increase by 5%.

Required:
Prepare budgeted profit and loss statement for the year ending 28 February 2021. **(18)**

Q.3 Ayyan Group (AG) opened a pizza outlet under the brand name 'Say Cheese' (SC) two years ago. The initial assessment of the investment in SC had high financial prospects. AG entered into a five year rent agreement for pizza outlet. The rent for the first year was agreed at Rs. 600,000 subject to an annual increment of 10%. For pizza preparation, AG imported equipment amounting Rs. 5,000,000 having useful life of five years with a residual value of Rs. 1,000,000.

After two years of operations, SC has failed to achieve desirable results and the management of AG is skeptical whether to continue to operate SC for further three years or not. You have been provided the following information in this regard:

(i) Sales for the first two years were amounted to Rs. 7,500,000 and Rs. 9,000,000 respectively.
(ii) Variable costs for the first two years were amounted to Rs. 6,000,000 and Rs. 7,080,000 respectively.
(iii) The fixed costs other than rent and depreciation for the first two years were amounted to Rs. 500,000 and Rs. 525,000 respectively.
(iv) The trend in sales, variable costs and fixed costs other than rent and depreciation from year 1 to year 2 is expected to continue in future.
(v) If management of AG decides to discontinue the investment in SC now, equipment could be sold for Rs. 4,000,000. Further, termination of rent agreement would require three months' notice period.
(vi) Applicable tax rate is 30% and tax is payable in the year in which liability arises. Tax depreciation on equipment is allowed at the rate of 25% under reducing balance method.
(vii) The cost of capital of AG is 16%.

Assume that except stated otherwise, all cash flows arise at the end of the year.

Required:
By using net present value method, recommend whether management of AG should continue to operate SC for a further period of three years or discontinue it now. **(16)**

Q.4 Ring Limited (RL) is engaged in the manufacture and sale of customized products. In January 2020, RL entered into an agreement with Gamma Limited (GL) for manufacture and supply of 3,500 units of a customized product 'Zing' at Rs. 4,000 per unit.

RL placed the order for raw material AA-2 and the supplier agreed to supply the material in second week of March 2020. RL had also hired skilled labour for the production of Zing. However, in February 2020, GL went bankrupt.

RL has recently been approached by Sigma Limited (SL) for supply of 3,500 units of D-Zing which is a modified version of Zing. RL can use the ordered raw material and the hired skilled labour for this product. The production of D-Zing will take three months. Following information has been provided in this regard:

Machinery
Specialized machinery will be needed to produce D-Zing. Following proposals are under consideration:

(i) Lease machinery for three months at monthly lease rentals of Rs. 250,000 and an upfront payment of refundable security deposit of Rs. 5,000,000. The upfront payment will be financed through running finance @ 20% per annum. As per the lease terms, monthly maintenance cost of Rs. 15,000 will be borne by the lessor.
(ii) Lease machinery at monthly lease rentals of Rs. 160,000 for a minimum period of six months. In this case, monthly maintenance of Rs. 20,000 will be borne by RL which will be incurred only in the months in which machinery is operative.

Direct material
Following raw materials will be required for manufacturing of each unit of D-Zing:

(i) **15 units of AA-2:** RL had already ordered 50,000 units of AA-2 at Rs. 75 per unit under the original contract of Zing. The current market price for AA-2 is Rs. 80 per unit. If the contract is not fulfilled, a penalty at 20% of the contract value will be payable by RL.
(ii) **10 units of A-78:** A-78 is available in market at Rs. 110 per unit. However, it can also be produced internally at a variable cost of Rs. 80 per unit. Fixed cost would be absorbed at Rs. 25 per unit. Internally produced A-78 would be subject to 20% normal loss.
(iii) **5 units of C-11:** Market price of C-11 is Rs. 20 per unit. However, a substitute material D-50 can also be used after processing it at a cost of Rs. 15 per unit. Presently 5,000 units of D-50 is available in stock as a result of over purchasing for a previous order. D-50 was purchased at Rs. 5 per unit and can be sold back to the supplier at Rs. 3 per unit.

Direct labour

(i) RL had hired skilled labour from a third party at Rs. 1,000 per hour under the original contract of Zing. If order from SL is not accepted, 200 labour hours would become idle and RL will have to pay 50% of the contract rate.
(ii) If SL's offer is accepted, then D-Zing would be produced in batches of 350 units and the first batch would require 400 skilled labour hours. Learning curve effect is estimated at 80% but would remain effective for the first four batches only. The index of learning curve is – 0.322.
(iii) 1.5 hours of semi-skilled labour is required for every unit of D-Zing. Since there is a shortage of semi-skilled labour in the market, only 4,000 labour hours are available at Rs. 600 per hour. However, labour is willing to do overtime at a 50% higher rate up to maximum of 1,500 hours. Alternatively, unskilled labour can be hired at Rs. 200 per hour, however, unskilled labour would require 300% of the time taken by semi-skilled labour. This can be reduced to 250% if training is given to them at a cost of Rs. 300,000.

Variable overheads
Variable overheads would be charged at Rs. 125 per skilled labour hour.

Required:
By using the relevant costs approach, compute the minimum price per unit that RL may quote. **(20)**

Q.5 Scents Limited produces three joint products P, Q and R. Raw material is added at the beginning of process I. On completion of process I, these three products are split in the ratio of 50:30:20 respectively. Joint costs incurred in process I are apportioned on the basis of net realizable value of the three products at split-off point. Products P and Q are sold in the same state whereas product R is further processed in process II before being sold in the market. A by-product TS is also produced in process II.

Following information relating to the two processes is available for the month of February 2020:

	Process I	**Process II**
Raw material at Rs. 411 per kg	744,000 kg	-
Direct labour at Rs. 200 per hour	611,568 hours	55,450 hours
Production overheads	Rs. 91,456,000	Rs. 7,230,000

Additional information:

(i) Loss of 7% is considered normal in process I.
(ii) Details of opening and closing stocks, estimated cost to sell and selling price are given as under:

	Selling price per kg (Rs.)	**Cost to sell per kg (Rs.)**	**Opening stock (kg)**	**Closing stock (kg)**
Product P	1,045	15	-	20,200
Product Q	960	10	-	15,140
Product R	1,021	12	7,800	48,134

(iii) Values of opening and closing stocks of product R comprised of cost of both processes. Value of opening stock of product R is Rs. 5,850,000.
(iv) In process II, 7450 kg of TS was produced and sold at Rs. 175 per kg. Proceeds from sale of TS are adjusted against cost of process II.
(v) Selling and administration costs are charged to P, Q and R at 12% of sales.

FIFO method is used for inventory valuation.

Required:
Prepare product-wise income statement for the month of February 2020. **(15)**

Q.6 **For the purpose of this question, assume that today is 01 March 2020.**

On 01 March 2018, Shahab Pakistan Limited (SPL) purchased 10,000 convertible bonds of Delphi Limited (DL) at par value of Rs. 100 each. The bonds carry annual mark-up of 12% which is payable semi-annually that is at the end of February and August each year. Each bond is convertible into 5 ordinary shares of DL which are currently trading at Rs. 24 each. Any bonds not converted by 28 February 2022 will be redeemed at Rs. 120 per bond. SPL's cost of capital is 15%.

Required:
Advise whether SPL should hold the bonds till redemption or convert them into ordinary shares today. Also determine at what market price per share SPL would be indifferent to hold bonds till redemption or convert into shares today. ***(Ignore tax)*** **(04)**

Q.7 (a) List any **four** situations in which EOQ model for determining optimum level of stocks becomes invalid. **(04)**

(b) Jamal Limited (JL) purchases raw material T3 for its product DBO on a quarterly basis as per the requirement of the production department. The management is considering to revise the existing policy of placing orders for T3. Following information is available in this regard:

(i) Annual production of DBO is 19,000 units.
(ii) Each unit of DBO requires 1 kg of T3 which is the resultant quantity after normal loss of 5%.
(iii) Minimum order quantity set by the supplier for purchase of T3 is 3,500 kg. However, the supplier offers following prices at different order quantities:

Order quantity (kg)	Price per kg (Rs.)
3,500	305
4,000	299
5,000	296

(iv) JL maintains T3's safety stock of 320 kg.
(v) The cost of placing each order is Rs. 4,200 out of which Rs. 1,780 pertains to salaries of staff of purchase department.
(vi) Holding cost per kg of average stock is Rs. 260 which includes rent of Rs. 180 for the floor space occupied by each kg. Variation in the stock held has no effect on the remaining holding cost.

Required:
Determine the purchase order quantity of T3 offered by the supplier at which JL's cost would be minimized. **(08)**

(THE END)