Certificate in Accounting and Finance Stage Examination

**The Institute of
Chartered Accountants
of Pakistan**

5 September 2024
3 hours – 100 marks
Additional reading time – 15 minutes

Cost and Management Accounting

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

Section A

Q.1   A factory has three machines and produces two products, A and B. The following information
is available in this respect:

	Machine 1	Machine 2	Machine 3
Operators required per machine	2	3	4
Machine hours required to produce each unit of A	0.7	0.6	0.5
Machine hours required to produce each unit of B	0.2	0.3	0.4
Electricity consumed per machine hour (kWh)	12	15	20

The budgeted overheads for the next quarter are Rs. 7.192 million, which include electricity
and power costs amounting to Rs. 2.912 million. All overheads, other than electricity and
power, are allocated on the basis of operator hours.

Required:
Determine the factory overhead rate per machine hour for each machine if the budgeted
production for the next quarter is 1,200 units of A and 800 units of B.   **(08)**

Q.2   Tazeem Limited (TL) is engaged in the manufacturing and sale of a single product. Its budget
for the next year envisages the following:

	Rs. in million
Sales (8 million units @ Rs. 64 per unit)	512
Net profit	32
40% of all expenses are fixed, while the remaining 60% are variable	

The directors of TL believe that the margin of safety as per the budget is low and should be at
least 20%. They understand that sales cannot be increased due to market competition and,
therefore, have advised the management to identify areas where fixed expenses can be
reduced to achieve a margin of safety of 20%.

Required:
Calculate the margin of safety as per the budget. Also, determine the required amount of
savings in fixed costs to achieve a margin of safety of 20%.   **(08)**

Q.3   A company's main raw material has an annual consumption of 960,000 units. The company
issues orders using the Economic Order Quantity (EOQ) of 80,000 units. The associated
annual holding costs amount to Rs. 30 per unit, with details as follows:

	Rs. per unit
Insurance (2% of cost)	18
Warehousing (based on space occupied)	12
	30

Required:
Determine the revised EOQ if the cost of the raw material increases to Rs. 1,160 per unit.   **(05)**

Q.4 HG Enterprises (HG) produces three similar products under different brand names. HG is planning to introduce a new product with several unique features under the brand name Star. Market research shows that in the first year, HG can sell 190,000 units of Star at Rs. 620 per unit. However, HG's board believes that the new product should only be introduced if it can increase the company's net profit by Rs. 25 million in the first year.

To assess whether the above target is achievable, the finance department has provided the following information:

(i) A commission of 5% is paid on sales.

(ii) 5% of the units produced are expected to be rejected upon inspection, which is carried out at the end of the process. The rejected units would be sold as scrap at Rs. 100 per unit.

(iii) Each unit of Star would require 2.5 kg of raw material A and 2 kg of raw material B. The estimated cost of A and B is Rs. 52 and Rs. 30 per kg, respectively.

(iv) Labour is estimated at 0.4 hours per unit. Similar to the last year, 12.5% of the labour hours would remain idle if HG continues to produce existing three products only. HG retains the idle labour because they are highly skilled and such additional labour is not available in the market. However, the idle labour are paid at 90% of the normal labour rate and are included in fixed overheads. Overtime, if any, is paid at 75% above the normal labour rate. In the latest annual financial statements, direct labour cost was Rs. 140 million at Rs. 500 per hour.

(v) 40% of the total factory overheads are fixed. Factory overheads are allocated on the basis of labour hours. As per the latest financial statements, total factory overhead were Rs. 105 million.

Required:
Determine the cost gap if HG wants to achieve a profit of Rs. 25 million from Star, in the first year. **(10)**

Q.5 Ahmed Manufacturing Company (AMC) has received an order to supply 200 units of a machine for Rs. 120,000 each. The estimated cost of producing the first machine is as follows:

	Rupees
Material	40,000
Labour (40 hours @ Rs. 500 per hour)	20,000
Overheads (120% of direct labour cost)	24,000
	84,000

The labour hours will be subject to a 90% learning curve. However, the impact of learning curve will stop after the 20th machine.

AMC's HR department has identified a training program that is expected to prolong the learning curve effect to the 25th machine. Moreover, the training would help reduce material wastage, thereby reducing the overall material cost by 1%. The training would cost Rs. 350,000.

Required:
Determine whether the training identified by HR department would be financially beneficial for this order. *(The value of learning curve factor for 90% learning curve effect is –0.152)* **(08)**

Q.6 Omega Limited (OL) uses material L3 in its production process. The annual demand for L3 is 180,000 units, and it is used evenly throughout the year. The daily demand can vary by 30 units from the average demand. OL orders L3 in batches of 10,000 units. The lead time and the probabilities of their occurrences are given below:

Lead time (in working days)	5	6	7	8	9	10
Probability of occurrence	32%	53%	5%	5%	3%	2%

Assume that both OL and the supplier work 300 days a year.

Required:
Calculate the safety stock, reorder level and maximum inventory level if OL is willing to take:

(i) a 10% risk of being out of stock

(ii) a 5% risk of being out of stock **(09)**

Section B

Q.7 Waheed Industries Limited (WIL) produces a single product. It is in the process of preparing its budget for the year ending 31 August 2025. An analysis of WIL's performance during the current year and plans for the next year is provided below:

(i) The sales volume is expected to increase from 90,000 units to 100,000 units.

(ii) The sale price will be increased to Rs. 1,200 per unit.

(iii) To achieve the increase in sales, advertising expenses will be increased by Rs. 2 million. Variable selling and administration expenses will increase from Rs. 100 to Rs. 110 per unit. As a result, total selling and administration expenses will increase from Rs. 15 million to Rs. 19 million.

(iv) Better quality raw materials will be purchased at Rs. 315 per kg, which is an increase of 5% over the previous year. This will reduce consumption by 8% to 1.38 kg per unit.

(v) Wages will be increased from Rs. 300 per hour to Rs. 350 per hour. The labour union has assured that this incentive will help improve labour efficiency and reduce labour time from 1 hour to 0.9 hour per unit.

(vi) Variable overheads will increase from Rs. 100 to Rs. 105 per labour hour.

(vii) Fixed overheads will increase due to inflation. However, due to an expected increase in production next year, fixed overhead cost per unit will reduce from Rs. 70 to Rs. 65.8 per unit.

(viii) It has recently been decided that closing finished goods inventory would be reduced from 10% to 6% of sales. Inventories are valued under the FIFO method, based on periodic inventory.

(ix) WIL does not maintain inventory of raw material.

Required:

(a) Prepare a budgeted profit or loss statement for the year ending 31 August 2025 using:

    (i) marginal costing   (ii) absorption costing **(17)**

(b) Reconcile net profit under marginal costing and absorption costing. **(02)**

Q.8 (a) Equinox Industries (EI) manufactures and sells three products A, B and C. EI intends to introduce a new product, D. The budgeting department has provided the following estimates for the next year:

Description	A	B	C	D
Units to be sold	300,000	240,000	180,000	120,000
	------------------- Rs. per unit -------------------			
Sale price	600	700	900	1,250
Cost of raw material	300	400	500	600
Labour @ Rs. 400 per hour	80	100	120	240
Manufacturing overheads	150% of labour cost			

Additional information:

(i) As per the estimates, the production of A, B and C would utilize 87% of the maximum available labour hours in the next year.

(ii) 40% of the manufacturing overheads are fixed.

(iii) Each unit of the products can be externally sourced at these prices: A for Rs. 520, B for Rs. 670, C for Rs. 770 and D for Rs. 1,200.

Required:
Determine the quantities of product(s), which EI should purchase from outside, in order to maximize the profit. **(14)**

(b) Identify and briefly explain **two** non-financial factors that support outsourcing and **two** that oppose it. **(04)**

Q.9 Epsilon Ltd (EL) has two production departments, A and B. It manufactures two joint products, X and Y, in a single process within department A. Incidental to the production of these products, it produces a by-product known as Z. The output ratio of X, Y and Z in the department A is 60:35:5. Y and Z are sold without further processing. However, X is further processed in the department B and sold as a new product, X1.

The following information has been compiled from EL's records for the latest month:

▪ **Sales related information:**

	X	Y	Z	X1
Sales price per kg	Rs. 120	Rs. 500	Rs. 10	Rs. 150
Selling expenses (as percentage of sales price)	5%	5%	7%	5%

▪ **Production related information:**

	Department A	Department B
Input of material M (Rs. 100 per kg)	100,000 kg	-
Input of material N (Rs. 30 per kg)	-	15,000 kg
Direct labour (Rs. 180 per hour)	15,000 hours	4,500 hours
Variable overheads per direct labour hour	Rs. 150	Rs. 80
Fixed overheads per direct labour hour	Rs. 125	Rs. 70
Material wastage (% of input)	10%	5%

▪ **Additional information:**
(i) Material is added at the beginning of the process.
(ii) Joint costs are allocated on the basis of net realisable values at the split-off point.
(iii) Proceeds from the sale of by-product Z are treated as a reduction in joint costs.
(iv) There were no opening or closing inventories at the beginning or end of the month.

Required:
(a) Calculate the joint cost and its apportionment to products X and Y. **(10)**
(b) Determine the additional profit that EL earns from further processing of X. **(05)**

(THE END)