



## Cost and Management Accounting

### Instructions to examinees:

- (i) Answer all **NINE** questions.
- (ii) Answer in **black** pen only.

### Section A

- Q.1 Royal Enterprises Limited (REL) operates a factory in Karachi where it produces a single product, Gamma, using 2 kg of raw material X and 3 kg of raw material Y. Both raw materials are purchased from a supplier in Peshawar, priced at Rs. 400 per kg for X and Rs. 250 per kg for Y. Typically, the raw materials are received within 10 days of placing an order. However, there are occasional delays. Last year, REL placed 24 orders and the deliveries were received as follows:

	Number of order(s)
Received within 10 days	20
Received within 11 days	03
Received within 12 days	01

Presently, REL does not maintain any safety stock. In the event of a delay in the receipt of consignment, raw materials are purchased from a supplier in Karachi at a price 25% higher than the normal cost to avoid stock-outs and prevent production stoppages. REL is now considering to maintain a safety stock.

REL produces 1,000 units daily. The cost of holding stock of raw materials X and Y, equivalent to one day's usage, is Rs. 1 million per annum.

### Required:

Determine whether REL should maintain any safety stock assuming that the current trend of deliveries would continue.

(08)

- Q.2 (a) Tulip Limited (TL) is negotiating a deal to manufacture and supply 5,000 units of a product Jasmine. In this respect, following information is available:

- The available labour hours are 10,000, whereas the required hours for the production of 5,000 units will be 15,000.
- The normal labour rate per hour is Rs. 250, and overtime is paid at 150% of the normal labour rate.
- The overhead rate per labour hour is Rs. 240, and it is based on a total fixed cost of Rs. 1.5 million.

In view of unavailability of the required labour force, the management is considering to adopt measures for improving labour efficiency. In this respect, the following options are under consideration:

**Option 1:** A piece wage system at the rate of Rs. 900 per unit. It is expected to improve the current labour efficiency by 25%.

**Option 2:** A bonus of Rs.120 per unit if a unit is completed within 90% of the given time. It is expected that 80% of units will be completed within 90% of the given time.

### Required:

Evaluate the above options and recommend the most beneficial option to TL.

(07)

- (b) Discuss the difference between labour productivity and labour efficiency.

(03)

- Q.3 Shahab Industries Limited (SIL) is engaged in the production of a product named Alpha2179, which requires Beta4358 as its primary raw material. SIL presently uses the EOQ model to place orders for Beta4358. Below is the relevant information about Beta4358:

Quantity per order	50,000 units
Cost per unit	Rs. 48
Ordering cost per order	Rs. 200,000
Total ordering and holding costs per annum	Rs. 4.8 million

SIL's supplier of Beta4358 is offering a 2% discount if the quantity per order is 75,000 units and a 4% discount if the quantity per order is 100,000 units.

**Required:**

Determine whether SIL should accept either of the two discount offers.

(08)

- Q.4 Sitara Enterprises (SE) is engaged in manufacturing various products that are supplied to retailers and large beauty parlours. SE's cost accounting records show the following data for the quarter ended 31 August 2023:

Raw material	Opening inventory	Purchases	Closing inventory	Purchase price per kg/unit	Total purchases
				----- Rupees -----	
A kg	10,000	66,000	9,000	100	6,600,000
B kg	30,000	315,000	48,000	80	25,200,000
C kg	-	20,000	2,000	70	1,400,000
D kg	12,000	102,000	11,000	50	5,100,000
E unit	4,000	30,000	5,000	40	1,200,000
F unit	10,000	65,000	12,000	30	1,950,000
Others					12,800,000
<b>Total</b>					<b>54,250,000</b>

**Additional information:**

- SE uses perpetual inventory system to record raw materials, which are valued using FIFO method.
- The values of opening and closing inventories of raw materials, as per general ledger, are Rs. 10.25 million and Rs. 15.7 million, respectively.
- Any adjustments in the value of inventory due to NRV or excess/shortage are accounted for directly to the P&L.
- In view of the prevailing inflation, the suppliers of raw materials had increased the prices by 25%, at the start of the quarter, i.e., 1 June 2023.
- A review of the records has revealed the following:
  - The issuance of raw material A has erroneously been recorded using the LIFO method instead of FIFO.
  - The issuance of 2,000 kg of raw material B was erroneously recorded as issuance of 3,000 kg of raw material C.
- A physical stock check at quarter-end has identified the following:
  - There is a shortage of 800 kg of raw material D.
  - 500 units of raw material E were in excess. An investigation showed that 200 units of E were erroneously delivered by the supplier, whereas the receipt of 300 units was not recorded as they were delivered just before the close of business on the last day.
  - 400 units of raw material F are damaged. These can be repaired at a cost of Rs. 3,000 or sold on 'as is where is' basis for Rs. 8,000.

**Required:**

Determine the value of the closing inventory of raw materials and the cost of raw material consumed, after taking into account the above adjustments, for the quarter ended 31 August 2023.

(09)

- Q.5 Khan Corporation Limited (KCL) produces three types of products. Following information pertains to its next year budget:

Description	Product A	Product B	Product C
	----- Rs. in million-----		
Sales	1,500	900	600
Direct material	(660)	(360)	(216)
Direct labour	(120)	(100)	(80)
Selling and distribution expenses	(150)	(120)	(100)
Administration and other expenses (all fixed)	(90)	(54)	(36)

**Additional information:**

- (i) The estimated total factory overheads amount to Rs. 380 million. All factory overheads are fixed except the following:
  - 75% of the total indirect labour of Rs. 40 million varies in proportion to the direct labour.
  - 90% of the total power and fuel cost of Rs. 100 million varies in proportion to the production.
- (ii) Selling and distribution expenses include the following:
  - Commission on sales @ 3%, 4% and 5% for products A, B and C respectively.
  - Distribution expenses which are estimated at 2% of sales for products A and B, and 4% of sales for product C.
  - All other expenses are fixed.
- (iii) The ratio of product-wise sales is expected to remain the same.

**Required:**

Compute the break-even sales amount for KCL. Also, determine the product-wise break-even sales amount.

(08)

- Q.6 Zahid Enterprises (ZE) produces a single product F-85 using raw materials X and Y. The break-up of standard cost per ton (1,000 kg) of F-85 is as follows:

	Rupees
Raw material – X (Rs. 50 per kg)	40,000
Raw material – Y (Rs. 80 per kg)	20,000
Direct labour (Rs. 300 per hour)	30,000
Factory overheads (40% are variable)	150% of direct labour

The details of ZE's operations for the month of August 2023 are as follows:

- (i) 30 tons of F-85 were produced, compared to a budgeted production of 33 tons.
- (ii) The opening inventory of X was 4,000 kg at Rs. 50 per kg.
- (iii) The opening inventory of Y was 1,000 kg at Rs. 80 per kg.
- (iv) 23,000 kg of X and 8,000 kg of Y were purchased at Rs. 52 and Rs. 79 per kg, respectively.
- (v) The closing inventory of X and Y was 2,000 kg and 1,800 kg, respectively.
- (vi) 3,200 direct labour hours were used, and the total direct labour cost amounted to Rs. 920,000.
- (vii) Due to inflation, the actual factory overheads exceeded the budget by 5%.

**Required:**

Compute the following:

- Material price and yield variances
- Labour rate and efficiency variances
- Variable overhead expenditure and efficiency variances
- Fixed overhead expenditure variance

**(10)****Section B**

**Q.7** Gulshan Enterprises Limited (GEL) is engaged in the manufacturing of specialized drilling equipment for the oil and gas industry. The following data pertains to the jobs undertaken by GEL during the month of August 2023:

	<b>Job A227</b>	<b>Job B391</b>	<b>Job C528</b>
Size of job order (units)	20	40	30
	----- <b>Rs. in million</b> -----		
Selling price per unit	55	72	10
Cost – opening balance	600	400	-
Cost incurred during the month:			
– Material issued	280	1,760	1,600
– Labour cost incurred	10	40	20
– Factory overheads	<b>See note 1</b>		

**Note 1: Factory overheads**

Factory overheads are allocated to jobs on the basis of labour cost. During the month, factory overheads amounted to Rs. 245 million.

On 16 August 2023, a special machine was hired on rent for three months, exclusively for use on Job C528. A rent of Rs. 4.8 million was paid in advance, while the remaining amounting to Rs. 2.4 million will be paid at the end of the three-month period. The transportation cost incurred in bringing the machine to the site amounted to Rs. 0.3 million. The costs incurred in respect of this machine have not been included in the factory overheads amount.

**Additional information:**

- (i) Job A227 was completed on 25 August 2023. Upon completion, unused materials costing Rs. 5 million were transferred to Job B391. All 20 units were transferred to the finished goods store, from which 14 units were transported to the client on 31 August 2023. The remaining 6 units were transported on 2 September 2023.
- (ii) On 31 August 2023, 16 units from Job B391 were completed and transferred to the finished goods store. It is estimated that the further cost required to complete the job will amount to Rs. 95 million.
- (iii) In a fire on 10 August 2023, some of the materials issued on Job C528 having a cost of Rs. 18 million was destroyed. 80% of the materials were insured, and GEL received a claim for those materials. The remaining materials were sold as scrap for Rs. 1 million.

**Required:**

Prepare journal entries to record the transactions for the month of August 2023.

**(16)**

- Q.8 Habib Industries Limited (HIL) is engaged in the production of two products, A and B, both of which use the same raw material. However, the manufacturing processes for these products are completely different. Following are the extracts from HIL's management accounts for the latest quarter.

Description	Product A			Product B		
	Units/ hours	Rate (Rs.)	Total amount (Rs. in '000)	Units/ hours	Rate (Rs.)	Total amount (Rs. in '000)
Sales	500,000	800	400,000	360,000	500	180,000
Raw materials consumed	320,000	300	96,000	108,000	300	32,400
Direct labour utilized*	200,000	400	80,000	120,000	300	36,000
Factory overheads	500,000	218	109,000	360,000	175	63,000
Selling & marketing costs	500,000	60	30,000	360,000	40	14,400
Admin. expenses (fixed)	-	-	20,000	-	-	9,000

\* Direct labour hours available for products A and B were 180,000 and 125,000 respectively.

**Additional information:**

- There are no opening and closing inventories for both products.
- Shortfalls in labour hours are covered through overtime, which is paid at 150% of the normal rate. Idle labour hours, if any, are paid at 80% of the normal rate.
- 60% of the factory overheads are fixed. Variable overheads vary in proportion to direct labour hours.
- 80% of the selling & marketing costs allocated to each product are fixed.

HIL's marketing department has recently explored a recurring quarterly export opportunity where 500,000 units of Product A can be converted into an equivalent number of units of Product Y. These units could then be exported at USD 3.90 per unit. In order to evaluate this opportunity, HIL has carried out a study and made the following projections:

- The conversion of Product A to Product Y requires further processing, which could be conducted using the plant that currently produces Product B. This would also necessitate the addition of a machine costing Rs. 12 million having a useful life of 5 years. However, as a result, the production of Product B would need to be reduced by 40%.
- Further processing of each unit of Product Y would require the use of an additional raw material costing Rs. 50, and 0.15 labour hour. The labour currently employed for the production of Product B would be used for this further processing.
- Exports of Product Y will incur insurance and freight cost of USD 0.50 per unit.
- Variable selling & marketing costs of Product Y would be 70% of the variable selling and marketing costs of Product A.
- Admin. expenses would increase by Rs. 0.6 million per month to accommodate the necessary changes in systems and procedures under the new production arrangement.
- The average exchange rate is projected at Rs. 300 per USD.

**Required:**

Determine whether HIL should avail the opportunity of export of Product Y.

(15)

- Q.9 Hercules Chemical Company Limited is engaged in the production of chemicals using two processes. Chemical T is used in Process 1, which produces chemicals L and M along with by-product N, in the ratio of 6:5:1. However, there is a wastage of 10% at Process 1 due to evaporation loss, identified at the end of the process.

Chemical M undergoes further processing in Process 2, where it is combined with the chemical V to produce chemical P. 15% of the input is produced as waste, identified at the end of the process, which needs to be disposed of at a cost of Rs. 50 per litre.

The following data pertains to the month of August 2023:

Description	Process 1	Process 2
	----- Litres -----	
Input of Chemical T (Cost per litre – Rs. 240)	20,000	-
Input of Chemical V (Cost per litre – Rs. 180)	-	1,750
Production:		
– Chemical L	8,700	-
– Chemical M	7,250	-
– Chemical N	1,450	-
– Chemical P	-	7,650
– Chemical waste		1,350

  

Direct labour (Rs. 350 per hour)	12,000 hours	-
Direct labour (Rs. 300 per hour)	-	2,000 hours

**Additional information:**

- Joint costs are allocated on the basis of net realizable value at the split-off point.
- The net realisable value of the by-product N is credited to Process 1.
- Factory overheads are applied at a rate of 180% of the direct labour cost in both processes. There were no under/over absorbed factory overheads.
- There was no opening or closing work-in-process inventory.
- There was no opening inventory of finished goods. However, 500 litres of L and 400 litres of P remained unsold at the end of the month.
- The sale prices of the chemicals are as follows:

	Sale price (Rs. per litre)	Direct selling costs
Chemical L	5,000	Rs. 500 per litre plus 4% commission
Chemical N	1,000	Rs. 40 per litre
Chemical P	7,000	Rs. 600 per litre plus 5% commission

**Required:**

Prepare the following ledger accounts:

- Work-in-process - Process 1
- Work-in-process - Process 2

(11)

(05)

(THE END)