



Cost and Management Accounting

Instructions to examinees:

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

Section A

- Q.1 Centaurus Limited (CL) is engaged in the business of manufacture and supply of leather jackets. Presently CL manufactures 30,000 jackets per month. Following information is available for the month of August 2022:

Number of skilled workers		350
Standard monthly hours per worker		200
Standard hours per unit		3
Normal wage rate per hour	Rs.	150
Overtime wage rate per hour	Rs.	250
Variable overhead rate per hour	Rs.	120

In order to reduce the conversion cost, CL's management is evaluating the following two wage incentive plans:

Option 1: Introduce a piece wage system at the rate of Rs. 500 per unit. This is expected to make workers 15% more efficient.

Option 2: Introduce a bonus of Rs. 50 per unit if a unit is completed within 90% of the standard time. It is expected that after introduction of bonus, 70% units will be completed within 90% of the standard time.

Required:

Evaluate the above options and advise the most beneficial option.

(08)

- Q.2 Saturn Limited (SL) imports raw material M-1 for manufacturing of its products. Following data relating to M-1 has been extracted from SL's latest records:

Maximum usage in a month	units	5000
Minimum usage in a month	units	3000
Average consumption in a month	units	3750
Maximum lead time	months	4
Minimum lead time	months	2

Required:

- (a) Briefly explain the meaning of 'Lead time' and 'Stock out costs'. **(03)**
- (b) Compute the following with brief explanation of why it is necessary for SL to maintain these levels of inventories:
 - (i) Reorder level
 - (ii) Maximum inventory level
 - (iii) Safety stock level **(05)**

- Q.3 Pluto Limited (PL) manufactures a single product ZAA and operates at a normal capacity of 45,000 machine hours per annum which is 90% of its full capacity. PL uses absorption costing method to manage its costs. Following information has been extracted from PL's prior year's records:

Actual production	44,000 units
Under absorbed overheads	Rs. 420,000
Fixed overhead absorption rate	Rs. 200 per machine hour

PL has a policy of revising its fixed overhead absorption rate for each year on the basis of prior year's actual fixed overheads. During the current year, following events took place:

- (i) There was an unexpected increase in demand of ZAA due to which PL utilized its excess production capacity to manufacture maximum units of ZAA. Further, factory workers were paid overtime of Rs. 1.2 million for additional hours worked during the year.
- (ii) The government announced an increase in taxes on electricity which increased PL's cost by Rs. 300,000.
- (iii) Due to a mechanical fault there was a machine breakdown which had to be repaired at a cost of Rs. 3 million. PL received insurance claim of Rs. 2.8 million against the machine breakdown.

Required:

- (a) For each of the above events, briefly explain whether they would independently result in over/under absorbed overheads. (03)
 - (b) Compute the budgeted and actual fixed overheads of prior year and current year. Assume that there was no other increase/decrease in fixed overheads other than those mentioned above. (07)
- Q.4 (a) List any **two** examples of bases for absorption of factory overheads. Also briefly discuss how a base should be selected. (02)
- (b) Venus Limited (VL) is a manufacturer of consumer goods. Below are the details related to overheads of its production department for the year:

Total machine hours available (2500 hours per machine)	7,500
Machine maintenance hours (150 hours per machine)	450
Departmental overhead absorption rate per productive machine hour Rs.	850

The management of VL has decided to replace one of its existing machines having zero book value with a new machine which will cost Rs. 1,200,000 and has a useful life of 10 years. The machine will be available for use from the beginning of next year and is expected to run for 2,500 hours during the next year including:

- (i) 80 hours for setting up the machine; and
- (ii) 110 hours for machine maintenance.

The estimated overheads for the year related to the new machine are given below:

Electricity consumption per hour	Rs.	180
Annual maintenance cost	Rs.	200,000
Indirect labour cost	Rs.	50,000

It has also been decided that from the beginning of next year, one of the managers from another department will be moved to the production department for monitoring the line efficiency. The manager's salary is Rs. 30,000 per month.

Required:

Compute the revised overhead absorption rate for the production department for the next year.

(06)

- Q.5 Galaxy Limited (GL) is engaged in trading various consumer goods including Star-1 for which demand is evenly distributed throughout the year. The present supplier of Star-1 offers a bulk purchase discount of 5% on all orders of 20,000 units and above, which GL has been availing. Due to availing the bulk discount, the normal transit loss has been increased from 3% to 4%.

GL is currently evaluating to adopt economic order quantity (EOQ) model which would reduce the transit loss to 3%.

Following information has been gathered for the purpose of evaluation:

Average annual demand	Units	120,000
Safety stock	Units	1,200
Per unit purchase cost	Rs.	250
Ordering cost per order	Rs.	50,000
Average annual holding cost per unit	Rs.	100

Required:

Advise GL whether it will be beneficial to adopt EOQ model.

(10)

- Q.6 Uranus Limited (UL) manufactures and sells two products, X1 and Y1. Following is the latest information pertaining to X1 and Y1:

	X1	Y1
	----- Units -----	
Sales volume	5000	2500
	----- Rupees -----	
Selling price per unit	4,400	2,200
Variable cost per unit	3,000	1,500
Fixed factory overheads	5,400,000	
Fixed selling and distribution overheads	4,500,000	

UL's finance director has suggested that sales of X1 can be increased by spending Rs. 300,000 on advertisement and reducing selling price by 5%. Sales volume of X1 is expected to increase by 20% as a result of adopting his suggestions.

Required:

- (a) Compute the existing overall break-even sales revenue and margin of safety units.
 (b) Advise UL whether it should go ahead with his suggestions or not.

(05)

(02)

Section B

Q.7 Mars Limited (ML) blends and markets a specialised chemical and has two production processes, A and B. In process A, two joint products, Comet and G-1 are produced and incidental to their production, a by-product String is also manufactured. G-1 is further processed in process B and converted into a new product Gravity. Following information has been extracted for the month of August 2022:

	Process A	Process B	Remarks
	----- Rs. in '000 -----		
Costs			
Direct material	9,600	-	9000 litres were added at the beginning of the process.
Conversion costs	4,500	2,000	Conversion costs are incurred evenly throughout the process.
Output	----- Litres -----		
Comet	3500	-	Sold for Rs. 1,500 per litre after incurring packing cost of Rs. 120 per litre.
G-1	4000	-	Transferred to process B for conversion into Gravity.
String	1000	-	Sold at split-off point for Rs. 600 per litre.
Gravity		4000	Sold for Rs. 2,200 per litre after incurring packing cost of Rs. 140 per litre.
Opening work in process	800	-	60% complete as to conversion.
Closing work in process	950	-	80% complete as to conversion.

Additional information:

- (i) Cost of opening work in process is Rs. 1,500,000 which comprises of 60% material cost and 40% conversion cost.
- (ii) Normal loss in process A is estimated at 10% of the input and is incurred at the end of the process. The rejected quantity from process A is sold for Rs. 200 per litre. No loss is incurred in process B.
- (iii) Proceeds from sale of by-product String are treated as reduction in joint costs. Joint costs are allocated on the basis of net realizable values of the joint products at the split-off point.
- (iv) ML uses weighted average method for inventory valuation.

Required:

- (a) Prepare quantity schedule and equivalent production schedule of process A. **(05)**
- (b) Compute cost per litre of Comet and Gravity. **(08)**
- (c) Prepare accounting entries to record production gain/loss of process A for the month. **(03)**

Q.8 Neptune Limited (NL) is engaged in the production of a single product Lunar-1 and uses standard absorption costing system. NL has total production capacity of 6,250 units per month whereas it operates at a normal capacity of 80%. Following information pertains to the month of August 2022:

Standard cost card per unit:

	Rupees
Direct material (8 kg at Rs. 30 per kg)	240
Direct labour (6 hours at Rs. 25 per hour)	150
Overheads* (Rs. 20 per labour hour)	120

*include budgeted fixed overheads of Rs. 200,000.

Sales and production data:

Budgeted selling price per unit	Rs.	700
Budgeted sales	Units	4,000
Actual sales	Units	5,200
Actual production	Units	5,400

Additional information:

- (i) There was no inventory at the beginning of the month.
- (ii) 50,000 kg direct material was purchased in bulk in order to avail discount of Rs. 150,000.
- (iii) Actual material loss was 10% as against the budgeted loss of 6%.
- (iv) Workers' wages were increased by 10% effective from 1 August 2022 due to prevailing high inflation. This increased workers' efficiency by 5% as compared to the budget.
- (v) Actual overheads (both fixed and variable) amounted to Rs. 720,000. Fixed overheads were over absorbed by Rs. 30,000.

Required:

- (a) Compute the budgeted profit for the month of August 2022 using standard marginal costing. (05)
- (b) Compute the following variances for the month of August 2022:
 - (i) Sales volume variance
 - (ii) Material price and usage variances
 - (iii) Labour rate and efficiency variances
 - (iv) Fixed overhead expenditure variance
 - (v) Variable overhead expenditure and efficiency variances (14)

Q.9 (a) Jupiter Limited (JL) is engaged in the production of three products L1, L2 and L3 which it sells in the local market. Presently, JL's manufacturing plant is operating at 80% of its capacity. Following information has been extracted from JL's records for the year ended 31 August 2022:

	L1	L2	L3
Production/sales (units)	3,500	6,000	7,000
Machine hours per unit (hours)	8	5	6
	----- Rupees -----		
Selling price per unit	6,200	5,000	7,000
Variable cost per unit			
Direct material	900	600	1,000
Direct labour	800	750	1400
Variable overheads	600	700	600
Fixed overheads	8,250,000		

In order to enter into the international market, on 1 August, 2022, JL hires the services of an export house to market its products, at a monthly payment of Rs. 100,000. JL resultantly receives first export order from a USA based company, Asteroid Limited. Details of the export order are as follows:

Product	Units	Selling price per unit PKR equivalent
L1	1,200	6,500
L2	1,500	5,200
L3	1,800	7,400

It is estimated that due to additional packaging, the direct material cost will increase by 10% and due to quality control, other variable overheads will increase by 15%.

A toll manufacturer offers JL to produce L1, L2 and L3 at Rs. 1,800, Rs. 1,600 and Rs. 2,500 respectively subject to provision of material by JL.

The management has decided to produce local orders on priority.

Required:

- Prepare a product wise plan for in-house production and outsourcing to maximize JL's profitability for the upcoming year. (10)
- (b) Briefly discuss any **four** non-financial considerations that are often relevant to an outsourcing decision. (04)

(THE END)