CMA Suggested Answers by CA Ashish Kalra Sir

(CA Inter Nov 2023)

Question 1(a): ABC Limited manufactures a product 'AM25' using material 'CEE'. The following information is available regarding material 'CEE':

Purchase price per unit	`300
Cost of placing an order	`150
Carrying cost per unit per annum	6% of purchase price
Consumption of material 'CEE' per annum	1,94,400 units
Lead time	Average 6 days, Maximum 8 days, Minimum 4 days

Maximum consumption of material 'CEE' per day is 200 kg more than the average consumption per day.

Required: Calculate the following in relation to material 'CEE':

(i) Economic Order Quantity.

(ii) Reorder Level

(iii) Maximum Stock Level. (Assume 360 days in a year)

(5 Marks)

(CA Inter Nov 2023)

Solution 1(a): (i) Economic Order Quantity (EOQ) = $\sqrt{\frac{2AO}{C}}$

Where, A= Annual demand for the material CEE = 1,94,400 Kgs

O = Ordering cost = `150

C = Carrying cost per unit per annum = 6% of `300 = 18

EOQ = $\sqrt{\frac{2 \times 1,94,400 \times 150}{18}}$ = 1,800 Units (Kgs.)

(ii) Re-order level (ROL) = Maximum consumption# x Maximum lead time

ROL = 740 x 8 = 5,920 Kg

#Maximum Consumption = Average consumption + 200 kg

= $\frac{1,94,400}{360}$ + 200 = 540 + 200 Kg = 740 Kg

Maximum lead time = 8 days

(iii) Maximum Stock level = Re-order quantity + Re-order level – (Minimum consumption* x Minimum lead time)

= 1,800 + 5,920 – (340 x 4)

= 7,720 – 1,360 = 6,360 Kg

*Minimum consumption = 2 x Average consumption – Maximum Consumption

= 2 x 540 – 740

= 1,080 – 740 = 340 kg

(labour) (new in mb)(new in pd)

Question 1(b): A worker took 60 hours to complete a job in a factory. The normal rate of wages is `80 per hour. The worker is entitled to receive bonus according to the Halsey Premium Plan. Factory overhead is recovered on the job at `60 per man hour actually worked. The factory cost of the job is `37,280 and material cost of the job is `28,400.

Required:

(i) Calculate the standard time for completing the job and effective hourly rate under the Halsey Premium plan.

(ii) Calculate the effective rate of earnings per hour if wages would have been paid under the Rowan Plan.

(5 Marks)

(CA Inter Nov 2023)

Solution 1(b):

Particulars	(`)
Factory Cost	37,280
Less: Factory Overheads 60 x `60	(3,600)
Prime Cost	**33,680**
Direct material	28,400
Direct wages (Balancing Figure)	**5,280**

(i) Wages under Halsey Plan (Rate x Actual hours worked) + Rate x $\frac{\text{Time Saved}}{\text{Standard Time}}$ x Time taken

`5,280 = 60 x `80 + (S* – 60)/2 x `80

`5,280 = `4,800 + 40S – 2,400

S = `2,880/40 = 72 hours

*Standard time

Effective rate of earnings per hour = 5,280/60 = `88

(ii) Wages under Rowan Plan:

(Rate x Actual hours worked) + Rate x $\frac{\text{Time Saved}}{\text{Standard Time}}$ x Time taken

$= 60 \times 80 + \frac{72 - 60}{72} \times 60 \times 80 =$ `5,600

Effective rate of earnings per hour = 5,600/60 = `93.33

(joint products) (new in pd)(new in mb)

Question 1(c): XYZ Limited manufactures three joint products A, B and C from a joint process. Product B is sold at split off point whereas product A and C are sold after further processing. 10% of the quantity of product A is lost in further processing. Data regarding these products for the year ending 31st March, 2023 are as follows:

Particulars	A	B	C
Number of units produced and sold	3,60,000	2,10,000	4,50,000
Selling price per unit at split off point	-	`6	-
Selling price per unit after further processing	`9.50	-	`12
Further processing costs	`8,60,000	-	`10,40,000

The joint production cost upto the split off point at which A, B and C become separable products is `57,26,000.

Required:

(i) Prepare a statement showing apportionment of joint cost to the products using Net realizable value method.

(ii) Assume XYZ Limited has received an offer from D Limited to purchase product 'A' at the split off point at `7 per unit and another company PQR Limited has offered to purchase product 'C' at split off point at 9 per unit. Advise whether these offers should be accepted or not?

(5 Marks)

(CA Inter Nov 2023)

Solution 1(c): (i) Statement showing apportionment of joint cost to the products using NRV method

Particulars	Product A (`)	Product B (`)	Product C (`)
Sales value	34,20,000	12,60,000	54,00,000
	(3,60,000 x `9.5)	(2,10,000 x `6)	(4,50,000 x `12)
Less: Further processing cost	(8,60,000)	-	(10,40,000)
Net Realisable Value	**25,60,000**	**12,60,000**	**43,60,000**
Apportionment of Joint cost of `57,26,000 in the ratio of 256:126:436	17,92,000	8,82,000	30,52,000

(ii) Decision whether to Process further or not

Profit from further processing

Particulars	Product A (`)	Product C (`)
Sales Revenue	34,20,000	54,00,000
	(3,60,000 x 9.5)	(4,50,000 x 12)
Less: Joint cost	(17,92,000)	(30,52,000)
Less: Further processing cost	(8,60,0000)	(10,40,000)
(i) Profit/(loss)	**7,68,000**	**13,08,000**

Profit from Accepting offer (Sale at separation point)

Particulars	Product A (`) D Limited offer accepted	Product C (`) PQR Limited offer accepted
Sales Revenue	28,00,000	40,50,000
	(3,60,000/0.90) x 7	(4,50,000 x 9)

Less: Joint cost	(17,92,000)	(30,52,000)
(ii) Profit/(loss)	**10,08,000**	**9,98,000**
Incremental profit (loss) (i)-(ii)	**(2,40,000)**	**3,10,000**

On comparing profit at separation point with further processing profit, there is net loss of `2,40,000 in case of product A and profit of `3,10,000 in case of product C. Hence offer of D Ltd should be accepted and Product A should be sold at split off point Whereas product C should be sold after further processing.

(contract)

Question 1(d): Unique Construction Limited commenced a contract on 01.08.2022. The total contract price was `96,00,000. The following information was available from their costing records as at 31.03.2023:

Material consumed	`35,91,000
Wages paid	`9,65,000
Wages outstanding as on 31.03.2023	`75,000
Plant issued to site on 01.08.2022	`7,50,000
Direct expenses	`1,96,650
General overheads	`2,08,000

A supervisor who was paid `18,000 per month, had spent 40% of his time on this contract. Plant costing `60,000 was transferred to other contracts on 31.12.2022. Plant was to be depreciated at 15% per annum on straight line method (SLM) basis. On 31.03.2023, 60% of the contract was completed. The architect's certificate had been issued covering 50% of the contract price.

Prepare a Contract account and show the notional profit or loss as on 31.03.2023.

(5 Marks)

(CA Inter Nov 2023)

Solution 1(d): **Contract A/c for the year ending 31/03/23**

Particulars		(`)	Particular		(`)
To Material		35,91,000	By work in Progress:		
To Wages:			Work certified	48,00,000	
Current Wages	9,65,000		Work uncertified	8,61,000	56,61,000
Add: outstanding Wages	75,000	10,40,000	By Plant (Transferred)	60,000	
To Plant		7,50,000	Less: Dep @ 15% for 5 months	(3,750)	56,250
To Direct Expenses		1,96,650	By Plant at site		6,21,000
To General overheads		2,08,000	(`7,50,000 - `60,000 - `69,000)		
To Supervision Salary (18,000 x 8 x 40%)		57,600			
To Notional profit c/d		4,95,000			
		63,38,250			**63,38,250**

Working Note:

Calculation of cost of work uncertified:

Particular	(`)
Cost incurred till date	51,66,000
Estimated total cost (`51,66,000/60%)	86,10,000
Cost of work certified (`86,10,000 x 50%)	43,05,000
Cost of uncertified work (`51,66,000 - `43,05,000)	**8,61,000**

The solution can also be presented in following way and depreciation can be calculated as shown below:

Contract A/c for the year ending 31/03/23

Particulars		(`)	Particular	(`)
To Material		35,91,000		
To Wages:				
Current Wages	9,65,000			
Add: outstanding Wages	75,000	10,40,000		
To Depreciation on plant		72,750		

To Direct Expenses	1,96,650		
To General overheads	2,08,000		
To Supervision Salary (18,000 x 8 x 40%)	57,600	By work Cost (Bal Fig.)	51,66,000
	51,66,000		**51,66,000**
To Work cost	51,66,000	By work certified	48,00,000
To Notional profit c/d	4,95,000	By Work uncertified	8,61,000
	56,61,000		**56,61,000**

Working Note:

(1) **Calculation of cost of work uncertified:**

Particular	(`)
Cost incurred till date	51,66,000
Estimated total cost (51,66,000/60%)	86,10,000
Cost of work certified (`86,10,000 x 50%)	43,05,000
Cost of uncertified work (`51,66,000 – `43,05,000)	**8,61,000**

(2) **Calculation of Depreciation**

Plant value (`7,50,000 – `60,000) = `6,90,000 used for 8 months and plant value `60,000 used for 5 months.

Depreciation amount for 8 months = (`6,90,000 x 15% x 8 months) /12 = `69,000

Depreciation amount for 5 months = (`60,000 x 15% x 5 months) /12 = `3,750

Total depreciation amount = `72,750

Cost sheet (new in mb)(new in pd)

Question 2(a): The following data relates to the manufacture of product BXE for the year ended 31st March, 2023:

Particulars	Amount (`)
Value of stock as on 1st April, 2022	
Raw materials	27,00,000
Work in progress	10,60,000
Finished Goods	25,00,000
Material purchased	2,48,00,000
Freight inward	7,50,000
Direct wages	42,00,000
Power & Fuel	18,75,000
Cost of special drawings	3,60,000
Trade Discount	4,50,000
Insurance on material procured	15,000
Rent of Factory Building (1/5th used for office purpose)	7,00,000
Depreciation on machinery	6,25,000
Depreciation on Delivery Vans	1,20,000
Consumable stores and indirect wages	15,20,000
Quality Control cost	9,00,000
Primary packing cost	12,90,000
General Administrative overheads (excluding rent of building)	17,50,000
Salary paid to Marketing Staff	9,60,000
Packing cost for transportation	1,84,000
Value of stock as on 31st March, 2023	
Raw materials	32,60,000
Work in progress	11,80,000
Finished Goods	28,38,000

Additional Information:

- Further, some of the finished product was found defective and the defective products were rectified by incurring expenditure of additional factory overheads to the extent of `33,600. The cost of rectification is not included in details mentioned above.
- An amount of `1,20,600 was realised by selling scrap and waste generated during the year.

Prepare Cost sheet for the year ended 31st March, 2023 showing:

(i) Prime cost,

(ii) Factory cost,
(iii) Cost of production.
(iv) Cost of goods sold, and
(v) Cost of sales.

(10 Marks)
(CA Inter Nov 2023)

Solution 2(a): Cost Sheet for the product BXE

S. No.	Particulars	(`)	(`)
(i)	**Material Consumed:**		
	Raw materials purchased	2,48,00,000	
	Freight inwards	7,50,000	
	Insurance on material procured	15,000	
	Less: Trade discount	(4,50,000)	
	Add: Opening stock of raw materials	27,00,000	
	Less: Closing stock of raw materials	(32,60,000)	2,45,55,000
(ii)	Direct wages		42,00,000
(iii)	**Direct expenses:**		
	Power & fuel	18,75,000	
	Cost of special drawings	3,60,000	22,35,000
	Prime Cost		**3,09,90,000**
(iv)	**Works/ Factory overheads:**		
	Rent of factory building (4/5th of 7,00,000)	5,60,000	
	Depreciation on machinery	6,25,000	
	Defective rectification cost	33,600	
	Consumable stores & indirect wages	15,20,000	27,38,600
	Gross Works Cost		**3,37,28,600**
	Add: Opening work in process		10,60,000
	Less: Closing work in process		(11,80,000)
	Factory Cost		**3,36,08,600**
(v)	Quality control cost		9,00,000
(vi)	Primary packing cost		12,90,000
(vii)	Less: Amount realised from scrap sale		(1,20,600)
	Cost of Production		**3,56,78,000**
	Add: Opening stock of finished goods		25,00,000
	Less: Closing stock of finished goods		(28,38,000)
	Cost of Goods Sold		**3,53,40,000**
	Administrative overheads:		
(viii)	Rent of factory building (1/5th of 7,00,000)		1,40,000
	General administrative overheads		17,50,000
	Selling and Distribution overheads:		
(x)	Salary paid to marketing staff		9,60,000
(xi)	Packing cost for transportation		1,84,000
(xii)	Depreciation on delivery vans		1,20,000
	Cost of Sales		**3,84,94,000**

Alternatively, Power and fuel expenses of `18,75,000 can be taken as a part of factory overhead. Accordingly, prime cost will be 2,91,15,000. However, there will be no change in factory cost, cost of production, cost of goods sold and cost of sales.

(budgetary control) (new in pd)(new in mb)

Question 2(b): HL Limited produces and sells four varieties of beverage. The past data shows different demand patterns for various quarters during the year. The sales quantity and selling price for the month of September 2023 is as follows:

Particulars	Sales Quantity	Selling Price per unit
Hot Coffee	1,40,000 Units	`20

Cold Coffee	3,40,000 Units	`40
Fruit Juice	4,20,000 Units	`20
Carbonated Soft Drink	2,70,000 units	`20

For the quarter October to December 2023, it is estimated that due to climate changes the demand for Hot Coffee would increase every month by 50% of the previous month and the demand for Cold Coffee would decrease every month by 30% of the previous month. The demand for Fruit Juice would decrease by 20% in the month of October 2023 and thereafter it will remain constant. HL Limited would be able to sell only 60,000 units, 50,000 units and 30,000 units of Carbonated Soft Drink respectively during the months of October, November and December 2023. There would be no change in the selling price of all the products during the next quarter.

Standard Quantity of closing stock for the period September 2023 to December 2023 is as follows:

(in units)

	Hot Coffee	Cold Coffee	Fruit Juice	Carbonated Soft Drink
September 2023	12,000	13,000	11,000	7,500
October 2023	15,000	14,000	12,000	5,500
November 2023	13,000	15,000	10,000	6,000
December 2023	11,000	16,000	13,000	7,000

You are required to prepare a Production Budget (in units) and Sales Budget (in units and sales value) for the months of October, November and December 2023.

(10 Marks)

(CA Inter Nov 2023)

Solution 2(b): **Production Budget (in units)**

Particulars	Hot Coffee	Cold Coffee	Fruit Juice	Carbonated Soft Drink
October 2023				
Sales*	2,10,000	2,38,000	3,36,000	60,000
Add: Closing stock	15,000	14,000	12,000	5,500
Total Quantity Required	**2,25,000**	**2,52,000**	**3,48,000**	**65,500**
Less: Opening stock	(12,000)	(13,000)	(11,000)	(7,500)
Production	**2,13,000**	**2,39,000**	**3,37,000**	**58,000**
November 2023				
Sales*	3,15,000	1,66,600	3,36,000	50,000
Add: Closing stock	13,000	15,000	10,000	6,000
Total Quantity Required	**3,28,000**	**1,81,600**	**3,46,000**	**56,000**
Less: Opening stock	(15,000)	(14,000)	(12,000)	(5,500)
Production	**3,13,000**	**1,67,600**	**3,34,000**	**50,500**
December 2023				
Sales*	4,72,500	1,16,620	3,36,000	30,000
Add: Closing stock	11,000	16,000	13,000	7,000
Total Quantity Required	**4,83,500**	**1,32,620**	**3,49,000**	**37,000**
Less: Opening stock	(13,000)	(15,000)	(10,000)	(6,000)
Production	**4,70,500**	**1,17,620**	**3,39,000**	**31,000**

*sales units are taken from sales budget

Sales Budget (in Units and sales value)

Particulars	Hot Coffee	Cold Coffee	Fruit Juice	Carbonated Soft Drink
October 2023 (in units)	2,10,000 [1,40,000 + (1,40,000 x 50%)]	2,38,000 [3,40,000 - (3,40,000 x 30%)]	3,36,000 [420000 - (4,20,000 x 20%)]	60,000
October 2023 (Sales Value in `)	42,00,000 (2,10,000 x `20)	95,20,000 (2,38,000 x `40)	67,20,000 (3,36,000 x `20)	12,00,000 (60,000 x `20)
November 2023 (in units)	3,15,000 [2,10,000 + (2,10,000 x 50%)]	1,66,600 [2,38,000 - (2,38,000 x 30%)]	3,36,000	50,000
November 2023 (Sales Value in `)	63,00,000 (3,15,000 x `20)	66,64,000 (1,66,600 x `40)	67,20,000 (3,36,000 x `20)	10,00,000 (50,000 x `20)
December 2023	4,72,500	1,16,620	3,36,000	30,000

(in units)	[3,15,000 + (3,15,000 x 50%)]	[1,66,600 - (1,66,600 x 30%)]		
December 2023 (Sales Value in `)	94,50,000 (4,72,500 x `20)	46,64,800 (1,16,620 x `40)	67,20,000 (3,36,000 x `20)	6,00,000 (30,000 x `20)

Sales Budget can also be presented in following way:

	Oct 2023		Nov 2023		Dec 2023	
	Quantity (units)	Amount (`)	Quantity (units)	Amount (`)	Quantity (units)	Amount (`)
Hot Coffee @ `20 per unit	2,10,000	42,00,000	3,15,000	63,00,000	4,72,500	94,50,000
Cold Coffee @ `40 per unit	2,38,000	95,20,000	1,66,600	66,64,000	1,16,620	46,64,800
Fruit Juice @ `20 per unit	3,36,000	67,20,000	3,36,000	67,20,000	3,36,000	67,20,000
Carbonated Soft Drink @ `20 per unit	60,000	12,00,000	50,000	10,00,000	30,000	6,00,000
		2,16,40,000		2,06,84,000		2,14,34,800

(overheads) (new in mb)(new in pd)

Question 3(a): HCP Ltd. is a manufacturing company having two production departments, P and Q and two service departments, R and S. The budgeted cost information for the month of October 2023 is furnished below:

Particulars		Production Departments		Service Departments	
	(`)	P (`)	Q (`)	R (`)	S (`)
Indirect material	1,77,500	94,750	49,750	18,270	14,730
Indirect Labour	1,55,000	35,000	75,000		
Factory Rent	75,000				
Depreciation on machinery	37,500				
Power	96,000				
Security Expenses for Factory Premises	24,000				
Insurance- machinery	12,000				
Supervisor Expenses	48,000				
Additional Information:					
Floor Area (Sq. meters)		1250	750	200	300
Net book value of machinery (`)		21,00,000	5,00,000	1,00,000	3,00,000
H.P. of machines		800	200	80	120
Machine hours		4,000	1,000	600	800
Number of employees		10	30	6	4
Labour hours		2,000	6,000	1,200	600

The overhead costs of the two service department are distributed using step method in the same order viz. R and S respectively on the following basis:

Department R : Number of employees
Department S : Machine hours

Required:

(i) Prepare a statement showing distribution of overheads to various departments, clearly showing the basis of distribution.

(ii) Calculate the total budgeted overheads for both production departments after the service departments have been re-apportioned to them.

(iii) Calculate the most appropriate overhead absorption rate for each of the production department.

(10 Marks)

(CA Inter Nov 2023)

Solution 3(a)

Overhead Distribution Statement

Particular	Basis	Total Amount (`)	Production Departments		Service Departments	
			P (`)	Q (`)	R (`)	S (`)
Indirect material	Direct	1,77,500	94,750	49,750	18,270	14,730
Indirect labour	Direct	1,55,000	35,000	75,000	15,000	30,000

Factory rent (125:75:20:30)	Floor Area	75,000	37,500	22,500	6,000	9,000
Depreciation of machinery (21:5:1:3)	Book value of machinery	37,500	26,250	6,250	1,250	3,750
Power (3200:200:48:96)	H.P. x Machine hours	96,000	86,682	5,418	1,300	2,600
Security expenses for factory premises (125:75:20:30)	Floor Area	24,000	12,000	7,200	1,920	2,880
Insurance- machinery (21:5:1:3)	Book value of machinery	12,000	8,400	2,000	400	1,200
Supervisor expenses (10:30:6:4)	Number of employees	48,000	9,600	28,800	5,760	3,840
Total		**6,25,000**	**3,10,182**	**1,96,918**	**49,900**	**68,000**

Power can be distributed on the basis of HP of machines x Machine hours
800 x 4,000 = 32,00,000, 200 x 1,000 = 2,00,000, 80 x 600 = 48,000, 120 x 800 = 96,000
Ratio is 3200:200:48:96

(ii) Redistribution of Service Department's Expenses

Particular	Production Departments		Service Departments	
	P (`)	Q (`)	R (`)	S (`)
Overhead as per primary distribution	3,10,182	1,96,918	49,900	68,000
Expenses of service department R is apportioned among other departments P, Q & S in the ratio of number of employees (10:30:4)	11,340.90	34,022.73	(49,900)	4,536.37
Expenses of service department S is apportioned among other departments P & Q in the ratio of Machine hours (40:10)	58,029.10	14,507.27	-	(72,536.37)
Total Budgeted overheads	**3,79,552**	**2,45,448**	**-**	**-**

(iii) Calculation of overhead rates for each of the production department

Particular	Production Departments	
	P (`)	Q (`)
Total Budgeted overheads	3,79,552	2,45,448
Actual machine hours	4,000 hours	-
Actual labour hours	-	6,000 hours
Actual machine/labour hour rate	**94.89**	**40.91**

Note: Department P is assumed to be machine oriented and Department Q is assumed to be labour oriented as per information available in the question.

(service costing) (new in pd)(new in mb)

Question 3(b): Royal Hotel offers three types of rooms to its guests - Deluxe Room, Executive Room and Suite Room. Other information is as follows:-

	Deluxe Room	Executive Room	Suite Room
Room Tariff per day	`1,500	`2,400	`3,800
No. of rooms	20	10	4
Average occupancy during the year	80%	60%	75%
Housekeeping expenses per day	`280	`320	`425

The hotel provides complimentary breakfast facility to its executive room and suite room guests while swimming pool facility is provided free of cost only to suite room guests.

The restaurant and swimming pool is run by a contractor. The contractor recovers charges of `150 per person for breakfast and `200 per person for using swimming pool facility from Royal Hotel.

Besides the above-mentioned charges, annual fixed expenses are as follows:

Salaries to staff : `57,60,000

Electricity Expenses : `24,00,000

Salaries to staff are apportioned to Deluxe Room. Executive Room and Suite Room in the ratio of 25:35:40 and electricity expenses are to be apportioned in proportion to occupancy.

You are required to calculate the total profit of each room type on annual basis.

Note: Assume 360 days in a year and double occupancy in each category of room.

(10 Marks)
(CA Inter Nov 2023)

Solution 3(b): Calculation of room days

Particulars	Occupancy during the year		
	Deluxe Room	Executive Room	Suite Room
(i) No. of Rooms	20	10	4
(ii) Occupancy in %	80%	60%	75%
(iii) No. of days in a year	360	360	360
No. of rooms occupied per year (i) x (ii) x (iii) = (iv)	5,760	2,160	1,080
Room Rent per day per room (v)	`1,500	`2,400	`3,800
Annual Room Rent (iv) x (v) = (A)	**`86,40,000**	**`51,84,000**	**`41,04,000**

Statement showing Total Profit for each room type

Annual Room Rent	Deluxe Room	Executive Room	Suite Room
Staff Salary (25:35:40)	`14,40,000	`20,16,000	`23,04,000
Electricity Expenses (Occupancy)	`15,36,000	`5,76,000	`2,88,000
Annual Fixed Expenses (B)	**`29,76,000**	**`25,92,000**	**`25,92,000**
Housekeeping Expenses	`16,12,800	`6,91,200	`4,59,000
Breakfast Charges		`6,48,000 (2,160 x 2 x 150)	`3,24,000 (1,080 x 2 x 150)
Swimming Pool Charges			`4,32,000 (1,080 x 2 x 200)
Annual Variable Expenses (C)	**`16,12,800**	**`13,39,200**	**`12,15,000**
Total Cost (D) = [(B) + (C)]	**`45,88,800**	**`39,31,200**	**`38,07,000**
Profit [(A) - (D)]	**`40,51,200**	**`12,52,800**	**`2,97,000**

(abc)(new in mb)(new in pd)

Q4(a): JH Plastics Limited manufactures three products S, M and L. To date, simple traditional absorption costing system has been used to allocate overheads to products. Total production overheads are allocated on the basis of machine hours. The machine hour rate for allocating production overheads is `240 per machine hour under the traditional absorption costing system. Selling prices are calculated by adding mark up of 40% of the product cost. Information related to products for the most recent year is as under:

Particulars	Products		
	S	M	L
Units produced and sold	7,500	12,500	9,000
Direct material cost per unit (`)	158	179	250
Direct labour cost per unit (`)	40	45	60
Machine hours per unit	0.30	0.45	0.50
Number of Machine setups	120	120	160
Number of purchase orders	90	135	125
Number of inspections	100	160	140

The management wishes to introduce activity-based method (ABC) system of attributing production overheads to products and has identified major cost pools for production overheads and their associated cost drivers as follows:

Cost pool	Amount	Cost driver
Purchasing Department Cost	`7,00,000	Number of Purchase orders
Machine setup Cost	`9,00,000	Number of Machine setups
Quality Control Cost	`6,56,000	Number of inspections
Machining Cost	`5,64,000	Machine hours

Required:

(i) Calculate the total cost per unit and selling price per unit for each of the three products using:

(a) The traditional costing approach currently used by JH Plastics Limited;

(b) Activity based costing (ABC) approach.

(ii) Calculate the difference in selling price per unit as per (a) and (b) above and show which product is under-priced or over-priced.

(10 Marks)
(CA Inter Nov 2023)

Solution 4(a): (i) (a) Statement showing 'Cost per unit & Selling price per unit – Traditional Method'.

Particular	Products		
	S (`)	M (`)	L (`)
Direct material cost per unit	158	179	250
Direct labour cost per unit	40	45	60
Production overhead @ `240 per machine hour	72	96	120
	(`240 x 0.3)	(`240 x 0.4)	(`240 x 0.5)
Cost per unit	**270**	**320**	**430**
Add: Profit @ 40%	108	128	172
Selling price per unit	**378**	**448**	**602**

(b) Statement showing 'Cost per unit & Selling price per unit – Activity Based Costing'.

Particular	Activity Drivers	Total Amount (`)	Products		
			S	M	L
Production (units)	-	-	7,500	12,500	9,000
Machine hours	-	-	2,250	5,000	4,500
			(7,500 x 0.3)	(12,500 x 0.4)	(9,000 x 0.5)
			(`)	(`)	(`)
Direct material cost per unit (i)			158	179	250
Direct labour cost per unit (ii)			40	45	60
Overheads					
Purchasing department cost (90:135:125)	Number of purchase orders	7,00,000	1,80,000	2,70,000	2,50,000
Machine setup cost (120:120:160)	Number of machine setups	9,00,000	2,70,000	2,70,000	3,60,000
Quality control cost (100:160:140)	Number of inspections	6,56,000	1,64,000	2,62,400	2,29,600
Machining cost (225:500:450)	Machine hours	5,64,000	1,08,000	2,40,000	2,16,000
Total Overhead			**7,22,000**	**10,42,400**	**10,55,600**
Overhead Cost per unit (iii)			96.27	83.39	117.29
Total Cost per unit (i)+(ii)+(iii)			**294.27**	**307.39**	**427.29**
Add: Profit @ 40%			117.71	122.96	170.92
Selling price per unit			**411.98**	**430.35**	**598.21**

Note: The question may also be solved by calculating cost driver rate & allocating various cost based on cost driver rate. However, there will be no change in any of the answer.

(ii)

Particular	Products		
	S (`)	M (`)	L (`)
Selling price per unit as per Traditional Costing	378	448	602
Selling price per unit as per Activity Based Costing	411.98	430.35	598.21
Difference	**(33.98)**	**17.65**	**3.79**

Product S is underpriced while product M and L is overpriced using Traditional costing approach.

(marginal costing)(new in pd-Q21 u little similar)(new in mb-Q61 little similar) – for mcqs

Q4(b): R Ltd. produces and sells 60,000 units of product 'AN', at its Noida Plant. The selling price of the product is `15 per unit. The variable cost is 80% of selling price per unit. Fixed cost during this period is `4,20,000. The company is continuously suffering losses, and management plans to shut down the Noida Plant.

The fixed cost is expected to be reduced by `2,50,000.

Additional costs of plant shut down are expected at `25,000.

You are required to comment on:
(i) Whether the Noida plant be shut down?
(ii) Find the shut-down point in units.

(5 Marks)
(CA Inter Nov 2023)

Solution 4(b): Statement of profit

Particulars	(`)
Selling Price (per unit)	15
Less: Variable cost (per unit)	(12)
Contribution (per unit)	**3**
Capacity	60,000 units
Total contribution (60,000 units x `3)	1,80,000
Less: Fixed Cost	(4,20,000)
Loss	**(2,40,000)**

Shut down cost

Particular	(`)
Fixed cost	1,70,000
Additional cost	25,000
Shut down cost	**1,95,000**

(i) Since the loss of Noida plant exceeds shut down cost it is better to shut down the plant.
(ii) Shut down point = $\frac{\text{Total fixed cost - Shut down cost}}{\text{Contribution per unit}}$
= $\frac{4,20,000 - 1,95,000}{3}$ = 75,000 units

The solution can also be presented in following way

Statement of Profit

Particulars	If plant is continued (`)	If plant is shut down (`)
Selling Price (per unit)	15	-
Less: Variable cost (per unit)	(12)	-
Contribution (per unit)	**3**	-
Capacity	60,000 units	-
Total contribution (60,000 units x `3)	**1,80,000**	
Less: Fixed Cost	(4,20,000)	1,70,000
Additional Fixed Cost	-	25,000
Loss	**2,40,000**	**1,95,000**

(i) Since the loss of Noida plant exceeds shut down cost it is better to shut down the plant.
(ii) Shut down point = $\frac{\text{Total fixed cost - Shut down cost}}{\text{Contribution per unit}}$
= $\frac{4,20,000 - 1,95,000}{3}$ = 75,000 units

(process)(new in mb)(new in pd)
Q4(c): A product passes through two processes; Process A and Process B.
The output of Process A is treated as input of Process B.
The following information has been furnished:

Particulars	Process A	Process B
Input Material 78,000 Kg @`5	`3,90,000	-
Indirect Material	-	`34,320
Wages	`2,85,000	`3,30,000

Overhead	`1,67,400	`1,11,600
Output transferred to Process B	68,640 kgs	
Transfer to Finished Stock	-	69,000 kgs
Normal loss of input material (weight in kgs.)	7,800 kgs	240 kgs

There is no realisable value for normal loss. No stock of raw materials on work-in-process was left at the end.
You are required to prepare the Process account for each Process.

(5 Marks)
(CA Inter Nov 2023)

Solution 4(c): **Process A Account**

Particulars	Units	(`)	Particulars	Units	(`)
To Material	78,000	3,90,000	By Normal Loss	7,800	-
To Wages		2,85,000	By Abnormal Loss	1,560	18,720
To Overheads		1,67,400	By Process B A/c	68,640	8,23,680
Total	**78,000**	**8,42,400**	**Total**	**78,000**	**8,42,400**

Cost per unit of completed units and abnormal loss = $\frac{8,42,400}{78,000 \text{ units} - 7,800 \text{ units}}$ = `12 unit

Process B Account

Particulars	Units	(`)	Particulars	Units	(`)
To Process A A/c	68,640	8,23,680	By Normal loss	240	-
To Indirect Material		34,320	By Finished stock	69,000	13,11,000
To Wages		3,30,000			
To Overheads		1,11,600			
To Abnormal gain	600	11,400			
Total	**69,240**	**13,11,000**	**Total**	**69,240**	**13,11,000**

Cost per unit of completed units and abnormal gains:

$\frac{\text{Total cost}}{\text{Inputs - Normal loss}} = \frac{`12,99,600}{68,640 \text{ units} - 240 \text{ units}}$ = `19

(standard) (new in pd)(new in mb)

Question 5(a): PQR Alloys Ltd. uses a standard costing system.

Budgeted information for the year:

Budgeted output	: 84,000 units
Variable Factory Overhead per unit	: `16
Standard time for one unit of output	: 0.80 machine hour
Fixed factory overheads	: `6,72,000

Actual results for the year:

Actual output	: 87,600 units
Variable Overhead efficiency variance	: `67,200 (A)
Actual Fixed factory overheads	: `7,05,000
Actual variable factory overheads	: `14,37,000

Required: Calculate the following variances clearly indicating Adverse(A) or Favourable (F):
(i) Variable factory overhead expenditure variance.
(ii) Fixed factory overhead expenditure variance.
(iii) Fixed factory overhead efficiency variance.
(iv) Fixed factory overhead capacity variance.

(10 Marks)
(CA Inter Nov 2023)

Solution 5(a): Calculation of actual hours

Standard rate per hour = $\frac{\text{Variable factory overhead per unit}}{\text{Standard time for one unit of output}} = \frac{`16}{0.8}$ = `20

Variable Overhead Efficiency Variance:

(Standard hours for actual production – Actual hours) x Standard rate per hour
Let actual hours be X
[(87,600 x 0.8) – X] x 20 = -67,200

(70,080 – X) x 20 = -67,200
X = 73,440

(i) Variable Factory Overhead Expenditure Variance:
(Variable overhead at actual hours – Actual variable overheads)
[(13,44,000/67,200) x 73,440] - 14,37,000 = 31,800 F

(ii) Fixed Factory Overhead Expenditure Variance:
Budgeted fixed overhead – Actual fixed overhead.
(6,72,000 – 7,05,000) = 33,000 A

(iii) Fixed Factory Overhead Efficiency Variance:
(Standard hours for actual production – Actual hours) x Standard rate per hour
(70,080 – 73,440) x 10 = 33,600 A

(iv) Fixed Overhead Capacity Variance:
(Actual hours - Budgeted hours) x Standard rate per hour
(73,440 - 67,200) x 10 = 62,400 F

The solution can also be presented in following way based on Quantity (units)

Calculation of standard quantity for actual hours:
Variable standard rate per unit (SR) = `16

Variable Overhead Efficiency Variance:
(SR x AQ) – (SR x standard quantity for Actual hours worked)
-67,200 = (16 x 87,600) – 16X
-67200 = 14,01,600 - 16X
X = 14,68,800/16 = 91,800 (SQ for actual hours worked)

(i) Variable Factory Overhead Expenditure Variance:
(SR x SQ for actual hour worked – Actual variable overheads)
16 x 91,800 – 14,37,000 or 14,68,800 – 14,37,000 = 31,800 F

(ii) Fixed Factory Overhead Expenditure Variance:
Budgeted fixed overhead – Actual fixed overhead.
(6,72,000 – 7,05,000) = 33,000 A

(iii) Fixed Factory Overhead Efficiency Variance:
Standard rate per unit (SR) = 6,72,000/84,000 = `8 per unit
(SR x AQ) – (SR x standard quantity for Actual hours)
(8 x 87,600) – (8 x 91,800)
(7,00,800 – 7,34,400) = 33,600 A

(iv) Fixed Overhead Capacity Variance:
(SR x Standard quantity for Actual hours - Budgeted fixed overheads)
(8 x 91,800) – (6,72,000)
(7,34,400 – 6,72,000) = 62,400 F

(cost sheet)(new in pd)(new in mb)

Question 5(b): The following data relate to the manufacture of a product 'VD-100* during the month of October 2023:

Good units produced	: 12,600
Units Sold	: 11,800
Direct wages	: `8,82,000
Administrative Overheads	: `4,72,000
Selling price per unit	: `416

Each unit produced requires 2 kg of material 'Z'. Cost of material 'Z' is `72 per kg. 10% of the production has been scrapped as bad and fetches `45 per unit. Factory overheads are 80% of wages. Selling and distribution overheads are `54 per unit sold. There is no opening or closing stock of material and work in progress.
You are required to find out total cost of sales and profit for the month of October 2023.

(6 Marks)
(CA Inter Nov 2023)

Solution 5(b): Since 10% units are scrapped.
Units produced (gross) is 14,000 (12,600/90%)
Calculation of cost of sales and profit

Particulars	(`)
Raw Material (28,000 x `72)	20,16,000
Wages	8,82,000
Prime Cost	**28,98,000**
Factory overheads	7,05,600
Factory Cost	**36,03,600**
Sale of Scrap (1,400 x `45)	(63,000)
Cost of Production	**35,40,600**
Less: Closing Stock of finished goods $\left(\frac{`35,40,600}{12,600} \times 800\right)$	(2,24,800)
Cost of goods sold	**33,15,800**
Add: Administration overheads	4,72,000
Add: Selling & Distribution overheads (`54 x 11,800)	6,37,200
Cost of Sales	**44,25,000**
Sales (11,800 x `416)	49,08,800
Profit	**4,83,800**

(cost accounting system)(new in mb)(new in pd)
Question 5(c): Construct journal entries in the following situations assuming that cost and financial transactions are integrated:
(i) Purchase of raw material : `4,40,000
(ii) Direct Material issued to production : `3,60,000
(iii) Wages charged to production : `80,000
(iv) Manufacturing overheads charged to production : `1,32,000

(4 Marks)
(CA Inter Nov 2023)

Solution 5(c): Journal entries are as follows

Particulars		DR. (`)	Cr. (`)
Stores Ledger Control A/c To Payables (Creditors)/ Bank A/c (Materials purchased)	Dr.	4,40,000	4,40,000
Work-in-Process Control A/c To Stores Ledger Control A/c (Materials issued to production)	Dr.	3,60,000	3,60,000
Work-in-Process Control A/c To Wages Control A/c (Direct wages charged to production)	Dr.	80,000	80,000
Work-in-Process Control A/c To Factory Overhead Control A/c (Manufacturing overhead charged to production)	Dr.	1,32,000	1,32,000

(chap 1)
Question 6(a): Explain very briefly the following terms used in Cost and Management Accounting:
(i) Pre-determined Cost
(ii) Estimated Cost
(iii) Imputed Cost
(iv) Discretionary Cost

(5 Marks)
(CA Inter Nov 2023)

Solution 6(a): (i) Pre- Determined Cost: A cost which is computed in advance before production or operations start, on the basis of specification of all the factors affecting cost, is known as a pre-determined cost.
(ii) Estimated Cost: Estimated cost is "the expected cost of manufacture, or acquisition, often in terms of a unit of product computed on the basis of information available in advance of actual production or purchase". Estimated costs are prospective costs since they refer to prediction of costs.
(iii) Imputed Cost: Imputed costs do not involve any immediate cash payment. Implicit costs are not recorded in the books of account but yet, they are important for certain types of managerial decisions such as equipment replacement and relative profitability of two alternative courses of action. They are also known as economic costs. These costs are similar to opportunity cost.
(iv) Discretionary Cost: Discretionary costs are not tied to a clear cause and effect relationship between inputs and outputs. They arise from periodic decisions regarding the maximum outlay to be incurred. Examples are - advertising, public relations, training etc.

(material)
Q6(b): State with reasons whether the following independent statements are true or false:
(i) Under LIFO method, in the period of falling prices, lower income is reported and income-tax liability is reduced.
(ii) Under VED analysis, inventories are classified on the basis of cost of individual items.
(iii) Material requisition note is prepared by the store keeper.
(iv) Simple average pricing method is suitable when quantity purchased under each lot is different and prices fluctuate considerably.
(v) Bin card and stores ledger are maintained by the purchasing department.

(5 Marks)
(CA Inter Nov 2023)

Solution 6(b):

	True/False	Reason
(i)	False	Under LIFO method, in case of falling prices profit tends to rise due to lower material cost, thus income tax liability is increased.
(ii)	False	Under VED Analysis, inventories are classified on the basis of its criticality for the production function and final product.
(iii)	False	Material Requisition Note is prepared by the production or other consuming department. It is a voucher used to get material issued from store.
(iv)	False	Simple average pricing method is suitable when the materials are received in uniform lots of similar quantity, and prices do not fluctuate considerably.
(v)	False	Bin card is maintained by the storekeeper in the store. While Stores ledger is maintained in cost accounting department.

(labour)
Q6(c): What do you mean by employee productivity? Point out the factors which must be taken into consideration for increasing employee productivity.

(5 Marks)
(CA Inter Nov 2023)

Solution 6(c): Meaning of employee productivity
Productivity is generally determined by the input/output ratio.
In case of employees, it is calculated as: $\frac{\text{Standard time for doing actual work}}{\text{Actual time taken}}$
Employee productivity is used for measuring the efficiency of individual workers. It is an index of efficiency in the utilisation of human resources, materials, capital, power and all kinds of services and facilities.
It is measured by the output in relation to input. Productivity can be improved by reducing the input for a certain quantity or value of output or by increasing the output from the same given quantity or value of input.
Factors for increasing Employee productivity: The important factors which must be taken into consideration for increasing employee productivity are as follows:
(1) Employing only those workers who possess the right type of skill.
(2) Placing a right type of person to a right job.
(3) Training young and old workers by providing them the right types of opportunities.
(4) Taking appropriate measures to avoid the situation of excess or shortage of employees.
(5) Carrying out work study for fixation of wages and for the simplification and standardisation of work.

()

Q6(d): Explain very briefly the following terms:

(i) Retention Money (contract)

(ii) Escalation Clause (contract)

(iii) Co-Products (joint product)

(iv) Job Costing (job costing)

(v) Process Costing (process)

(5 Marks)

(CA Inter Nov 2023)

Solution 6(d): (i) Retention Money: Retention money is a part of the value of work certified which though certified but is not paid by the contractee. Retention amount is kept by the contractee as security amount against any damage.

(ii) Escalation Clause: Escalation clause is a clause written in the agreement (contract) between the contractor and contractee which states that in case of increase in the prices of materials, wages or other supplies beyond a certain level the contract price will be increased by an agreed amount.

(iii) Co-Products: Co-products may be defined as Two or more products which are contemporary but do not emerge necessarily from the same material in the same process.

(iv) Job Costing: Job costing is the method of costing required to be done for unique products manufactured done against specific orders. In this method of costing, cost of each job is ascertained separately.

(v) Process Costing: Process costing is a method of costing used in industries where the material has to pass through two or more process for being converted into a final product. Here the cost of completing each stage of work is ascertained, like cost of making pulp and cost of making paper from pulp.

(abc)

Q6(e): What is meant by cost driver? Give its different categories. Suggest suitable cost drivers (at least two) in the following business functions:

(i) Distribution

(ii) Research and Development

(iii) Customer services

(5 Marks)

(CA Inter Nov 2023)

Solution 6(e): Meaning of Cost Driver: A Cost driver is a factor or variable which effect level of cost. Generally, it is an activity which is responsible for cost incurrence. Level of activity or volume of production is the example of a cost driver. An activity may be an event, task, or unit of work etc.

There are two categories of cost driver.

- **Resource Cost Driver:** It is a measure of the quantity of resources consumed by an activity. It is used to assign the cost of a resource to an activity or cost pool.
- **Activity Cost Driver:** It is a measure of the frequency and intensity of demand, placed on activities by cost objects. It is used to assign activity costs to cost objects.

Business Function	Cost drivers
Distribution	Number of units distributed, Number of customers
Research and Development	Number of research projects, personnel hours on a project, technical complexities of the projects.
Customer service	Number of service calls, number of products serviced, hours spent in servicing of products.