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INTERMEDIATE N' 2018 EXAM

SUBJECT- COSTING

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ANSWER-1

ANSWER-A

(a) (i) Economic Order Quantity = $\sqrt{\frac{2ab}{CS}}$

$$= \sqrt{\frac{2 \text{ x } 24{,}000 \text{ x } 1.20}{10 \text{ x } 10\%}} = \sqrt{57{,}600} = 240 \text{ packets}$$

(ii) Cost of ordering and carrying :

Per order Rs. 1.20

EOQ 240 packets

Per annum 24,000 packets

For 1 order of 240 packets, cost is Rs. 1.20.

For 24,000 packets, cost will be = (1.20 x 24,000)/240 = Rs. 120

Carrying cost is 10% of Rs. 10 = Re. 1 per packet

Average inventory = 240/2 x 10% of Rs. 10

= 120 x Re. 1 = Rs. 120

Total ordering and carrying cost = Rs. 120 + Rs. 120

= Rs. 240.

(b) Number of orders = $\frac{\text{Annual usage}}{\text{EOQ}}$

$$= \frac{24{,}000}{240} = 100 \text{ orders per year}$$

Consumption per day = $\frac{2,000}{30 \text{ days}}$ packets per month = 66.66 packets

Present supply on hand : 200 packets

66.66 packets last for = 1 day

200 packets will last for = 200 ÷ 66.66 = 3 days

Existing supply lasts for 3 days. Lead time is also 3 days. Hence, next order is to be placed immediately.

ANSWER-B

Actual output = 37 units

Standard output = $\frac{8\text{hrs.} \times 60 \text{ minutes}}{12 \text{ minutes per piece}}$ = 40 units

Efficiency = $\frac{37 \text{ units}}{40 \text{ units}} \times 100 = 92.5\%$

Under Taylor's differential piece rate system, a worker is paid lower piece rate of 83%, since his efficiency is less than 100%.

Standard production per hour =		60 minutes/12 minutes	=	5 units
Normal Rate per hour			=	Rs.20
Normal piece rate per unit	=	Rs.20/5 units	=	Rs.4
Lower piece rate per unit	=	Rs.4 × 83/100	=	Rs.3.32
Total earnings	=	37 units × Rs.3.32	=	Rs.122.84

ANSWER-C

Step-1 Contribution per unit

	x	*y*	*z*
Selling Price	Rs.22.00	Rs.15.00	Rs.19.00
Variable cost	16.00	12.00	13.00
Contribution	6.00	3.00	6.00

Step-2 = Contribution per unit

= Rs. 6 x 2 + Rs. 3x l+ Rs. 6 x3 = Rs. 33

Step-3 = Number of mixes required to earn target contribution

= (Rs. 80,000 + Rs. 52,000) ÷ Rs. 33 = 4,000 mixes

Step-4 = Number of products and sales revenue for target contribution

Product		**Units**	**Selling price per unit Rs.**	**Sales revenue required Rs.**
x	4,000 x 2	8,000	22	Rs. 1,76,000
y	4,000 x 1	4,000	15	60,000
z	4,000 x 3	12,000	19	2,28,000
				4,64,000

Comment:

The sales revenue of Rs. 4,64,000 will generate a profit of Rs. 52,000, if the products are sold in the ratio of 2 : 1 : 3.

ANSWER-D

Before computing the comprehensive machine hour rate, it is necessary to find out the total machine hours utilized and total wages paid to the operators.

Computation of total machine hours utilized :

Normal available hours p.m. per operator		208 hours
Less: Unutilised hours due to:		
Absenteeism	18 hours	
Leave	20	
Idle time	10	48
Total hours utilized p.m. per operator		160

Total hours utilized for 6 months for 6 operators = 160 x 6 x 6 or 5,760 hrs.

It is given in the question that the machines cannot work without an operator wholly engaged on it. Therefore, hours utilized for 6 operators, i.e., 5,760 hrs. represents the total machine hours. Total wages to 6 operators for 6 months :

Average rate of wages per hour = Rs. 20 ÷ 8 hrs. = Rs. 2.50

Normal hours for which wages are to be paid = 208 - 18 or 190 hrs.

Wages for 6 months for 6 operators @ Rs. 2.50/hr = 190 x 6 x 6 x 2.50 or Rs. 17,100.

Computation of Comprehensive Machine Hour Rate for the Machine Shop

Operators' wages (as above)	Rs. 17,100
Production Bonus	2,565
Power consumed	8,050

Supervision and indirect labour	3,300
Lighting and electricity	1,200
Repairs and maintenance (3% of Rs. 8 lakhs) ÷ 2	12,000
Insurance (given for 12 months: reduced to 50% for 6 months)	20,000
Depreciation for 6 months	40,000
Other sundry works expenses for 6 months	6,000
General management expenses for 6 months	27,265
Total overheads for 6 months	1,37,480

Comprehensive Machine Hour Rate = 1,37,480 ÷ 5760 hrs = Rs.23.87 per hour.

ANSWER-2

ANSWER-A

Calculation of Cost of Production and Profit for the month ended April 2018:

Particulars	Amount (`)	Amount (`)
Materials consumed:		
- Opening stock	6,06,000	
- Add: Purchases	**28,57,000**	
	34,63,000	
- Less: Closing stock	**(7,50,000)**	27,13,000
Direct wages		37,50,000
Prime cost		64,63,000

Factory expenses		21,25,000
		85,88,000
Add: Opening W-I-P		12,56,000
Less: Closing W-I-P		(14,22,000)
Factory cost		84,22,000
Less: Sale of scrap		(26,000)
Cost of Production		**83,96,000**
Add: Opening stock of finished goods		6,06,000
Less: Closing stock of finished goods		(3,59,000)
Cost of Goods Sold		86,43,000
Office and administration expenses		10,34,000
Selling and distribution expenses		7,50,000
Cost of Sales		1,04,27,000
Profit (balancing figure)		**29,73,000**
Sales		1,34,00,000

ANSWER-B

Production Budget (in units) for the year ended 31st March 2018

	Product M	Product N

Budgeted sales (units)	28,000	13,000
Add: Increase in closing stock	320	160
No. good units to be produced	28,320	13,160
Post production rejection rate	4%	6%
No. of units to be produced	29,500 $\left\{\frac{28320}{0.96}\right\}$	14,000 $\left\{\frac{13160}{0.94}\right\}$

(ii) Purchase budget (in kgs and value) for Material Z

	Product M	**Product N**
No. of units to be produced	29,500	14,000
Usage of Material Z per unit of production	5 kg.	6 kg.
Material needed for production	1,47,500 kg.	84,000 kg.
Materials to be purchased	1,63,889 kg. $\left\{\frac{147500}{0.90}\right\}$	88,421 kg. $\left\{\frac{84000}{0.95}\right\}$
Total quantity to be purchased	2,52,310 kg.	
Rate per kg. of Material Z	` 36	
Total purchase price	` 90,83,160	

(b) Calculation of Economic Order Quantity for Material Z

$$EOQ = \sqrt{\frac{2 \times 2{,}52{,}310 \times Rs.320}{Rs.36 \times 11\%}}$$

$= \sqrt{\frac{161478400}{\text{Rs.}3.96}}$

= 6385.72 kg

© Since, the maximum number of order per year cannot be more than 40 orders and the maximum quantity per order that can be purchased is 4000 kg. Hence, the total quantity of material Z that can be available for production:
= 4000 k.g. x 40 orders

= 160000 k.g.

	Product M	**Product N**
Material needed for production to maintain the same production mix	1,03,929 kg. $\left\{1{,}60{,}000 \times \frac{1{,}63{,}889}{2{,}52{,}310}\right\}$	56,071 kg. $\left\{1{,}60{,}000 \times \frac{88{,}421}{2{,}52{,}310}\right\}$
Less: Process wastage	10,393 kg.	2,804 kg.
Net Material available for production	93,536 kg.	53,267 kg.
Units to be produced	18,707 units $\left\{\frac{93{,}536\ k.g.}{5\ k.g.}\right\}$	8,878 units $\left\{\frac{53267\ k.g.}{6\ k.g.}\right\}$

ANSWER-3

ANSWER-A

Workings:

	Skilled	**Unskilled**
Standard Rate per hour	80	60
Standard time for producing one unit	1.5 hours (Rs.120 ÷ Rs.80)	1.5 hours (Rs.90 ÷ Rs.60)

Actual hours paid (AH_{Paid})	6,600 hours	5,400 hours
Standard hours required to produce 4,000 units (SH)	6,000 hours (1.5 hours× 4,000 units)	6,000 hours (1.5 hours× 4,000 units)
Actual hours worked (AH_{Worked})	$\frac{6,600}{100}$ x 97.5 = 6,435 hours	$\frac{5,400}{100}$ x 97.5 =5,265 hours
Revised Std. Hours (RSH)	$\left(\frac{6,600+5,400}{100} x97.5\right) x0.5$ =5,850 hours	$\left(\frac{6,600+5,400}{100} x97.5\right) x0.5$ = 5,850 hours
Idle $time_{Abnormal}$	6,600-6,435 = 165 hours	5,400 – 5,265 = 135 hours

(i) Labour Rate Variance = AH_{Paid} (Std. Rate – Actual Rate)

- Skilled = 6,600 hours (Rs.80 – Rs.87.50) = Rs.49,500 (A)
- Unskilled = 5,400 hours (Rs.60 – Rs.55) = Rs.27,000 (F)

= Rs.22,500 (A)

(ii) Labour Efficiency Variance = Std. Rate (SH – AH_{Worked})

- Skilled = Rs.80 (6,000 hours – 6,435 hours) = Rs.34,800 (A)
- Unskilled = Rs.60 (6,000 hours – 5,265 hours) = Rs.44,100 (F)

= Rs.9,300 (F)

(iii) Labour Mix Variance = Std. Rate (RSH – AH_{Worked})

- Skilled = Rs.80 (5,850 hours – 6,435 hours) = Rs.46,800 (A)
- Unskilled = Rs.60 (5,850 hours – 5,265 hours) = Rs.35,100 (F)

= Rs.11,700 (A)

(iv) Labour Yield Variance = Std. Rate (SH – RSH)

- Skilled = Rs.80 (6,000 hours – 5,850 hours) = Rs.12,000 (F)
- Unskilled = Rs.60 (6,000 hours – 5,850 hours) = Rs.9,000 (F)

= Rs.21,000 (F)

(v) Labour Idle time Variance = Std. Rate × Idle $time_{Abnormal}$

- Skilled = Rs.80 × 165 hours = Rs.13,200 (A)
- Unskilled = Rs.60 × 135 hours = Rs.8,100 (A)

= Rs.21,300 (A)

(vi) Variable Overhead Expenditure Variance

= AH_{Worked} (SR - AR)

$$= 11{,}700 \text{ hours} \left(\frac{Rs.75}{2 \text{ x} 1.5 \text{ hours}} - \frac{\text{Rs.}2{,}85{,}000}{11{,}700 \text{ hours}} \right)$$

= 11,700 hours (Rs.25 – Rs.24.36) = Rs.7,488 (F)

(vii) Variable Overhead Efficiency Variance

= Std. Rate (SH – AH_{Worked})

= Rs.25 (12,000 – 11,700) = Rs.7,500 (F)

ANSWER-B

(i) Statement of cost allocation to each product from each activity

	Product			
	M (Rs.)	**S (**Rs.)	**T (**Rs.)	**Total (**Rs.)
Power (Refer to working note)	40,000 (10,000 kWh × Rs.4)	80,000 (20,000 kWh × Rs. 4)	60,000 (15,000 kWh × Rs.4)	1,80,000
Quality Inspections (Refer to working note)	1,05,000 (3,500 inspec- tions × Rs. 30)	75,000 (2,500 inspec- tions× Rs.30)	90,000 (3,000 inspec- tions× Rs.30)	2,70,000

Working note :

Rate per unit of cost driver:

Power	(Rs. 2,00,000 / 50,000 kWh)	Rs.4/kWh
Quality Inspection	(Rs.3,00,000/10,000inspections)	Rs.30 per inspection

(ii) Computation of cost of unused capacity for eachactivity:

	(Rs.)
Power	20,000
(Rs. 2,00,000 – Rs. 1,80,000) Quality Inspections (Rs. 3,00,000 – Rs. 2,70,000)	30,000
Total cost of unused capacity	50,000

(iii) Factors management consider in choosing a capacity level to compute the budgeted fixed overhead cost rate:

- Effect on product costing & capacity management
- Effect on pricing decisions.
- Effect on performance evaluation
- Effect on financial statements
- Regulatory requirements.
- Difficulties in forecasting chosen capacity level concepts.

ANSWER-4

ANSWER-A

Process X Account

Particulars	Units	Amount Rs.	Particulars	Units	Amount Rs.
To Units introduced	40,000	3,20,000	By Normal loss	2,000	1,400
" Materials used		1,20,000	(5% @ 70 paise)		
" Direct labour cost		80,000	" Transfer to Process II@		
"Production expenses		40,000	Rs. 14.70 p.m.*	38,000	5,58,600
	40,000	**5,60,000**		**40,000**	**5,60,000**

* (Rs. 5,60,000 - Rs. 1,400)/38,000 units = Rs. 14.70 per unit.

Process II Account

Particulars	Units	Amount Rs.	Particulars	Units	Amount Rs.
To Transfer from Process I	38,000	5,58,600	By Normal Loss (7% @ 80 paise)	2,660	2,128
To Materials used		40,000	By Abnormal loss @ Rs.19.7078**	740	14,584
To Direct Labour cost		60,000	By Transfer to Process III@ Rs.19.7078 p.u.	34,600	6,81,888
To Production expenses		40,000			
	38,000	**6,98,600**		**38,000**	**6,98,600**

** (Rs. 6,98,600 - 2,128)/(38,000 - 2,660) = Rs. 19.7078 per unit

Process III Account

Particulars	Units	Amount Rs.	Particulars	Units	Amount Rs.
To Transfer from Process II	34,600	6,81,888	By Normal Loss (10% @ Re.1)	3,460	3,460
To Materials used		40,000	By Transfer to stock @ Rs.25.8968	32,000	8,28,700
To Direct labour cost		60,000			
To Production expenses		28,000			
To Abnormal gain @ Rs.25.8968	800	22,272			
	35,460	**8,32,160**		**35,460**	**8,32,160**

(Rs. 8,09,888 - 3,460)/(34,600 - 3,460) = Rs. 25.8968 per unit

ANSWER-B

	Rs.
Sales 50,000 units at Rs.7	3,50,000
Variable cost 50,000 × Rs.3	1,50,000
Contribution 50,000 × Rs.4	2,00,000
Fixed costs	1,20,000
Profit	80,000

P/V ratio = $\frac{\text{S-V}}{S}$ x 100 = $\frac{7-3}{7}$ x 100 = $\frac{4}{7}$ x 100 = 57.14%

BEP (units) = $\frac{\text{F}}{\text{Contribution per unit}} = \frac{\text{Rs.1,20,000}}{Rs.4} = 30,000$ Units

BEP (Value) = 30,000 Units × Rs.7 = Rs.2,10,000

Profit is Rs. 80,000 (as calculated above)

(ii)	with a 10% increase in output & sales	
	i.e., 50,000+ 5,000 = 55,000 units	
	Contribution 55,000 × Rs. 4 per unit	Rs. 2,20,000
	Fixed costs	Rs. 1,20,000
	Profit	Rs. 1,00,000
(iii)	with a 10% increase in Fixed Cost	
	Contribution (50,000 × Rs. 4 per unit)	Rs. 2,00,000
	Fixed cost (1,20,000 + 12,000)	Rs. 1,32,000
	Profit	Rs. 68,000
(iv)	with a 10% increase in variable costs	
	Selling price per unit	7.00
	Less: variable cost (3 + 0.30)	3.30
	Contribution per unit	3.70
	Total contribution 50,000 × 3.70	1,85,000
	Fixed costs	1,20,000
	Profit	65,000
(v)	with a 10% increase in selling price	
	Selling price per unit (7.00 + 0.70)	7.70
	Variable cost per unit	3.00
	Contribution per unit	4.70
	Total contribution 50,000 × Rs. 4.70	2,35,000
	Fixed costs	1,20,000
	Profit	1,15,000
(vi)	Effect of all the four above:-	
	Sales 55,000 × Rs. 7.70 per unit	Rs. 4,23,500
	Variable cost 55,000 × 3.30	Rs. 1,81,500
	Contribution 55,000 × 4.40	Rs. 2,42,000
	Fixed cost 1,20,000 + 12,000	Rs. 1,32,000

Profit Rs. 1,10,000

Note: It is assumed that the increased output of 55,000 units has been sold.

ANSWER-5

ANSWER-A

Particulars		Rs.	Particulars		Rs.
To Materials issued		90,000	By Material sold		18,125
To wages paid	75,000		By plant sold		2,875
Add : Outstanding	6,250	81,250	By plant at site c/d		7,750
To plant		25,000	By Material at site c/d		4,250
To sundry expenses	7,250		By work – in – Progress c/d		
Less : Prepaid	625	6,625	Work certified	2,18,750	
To Establishment charges		14,625	(Rs. 1,75,000 ÷ 80%)		
To costing P & L A/c.		3,125	Work uncertified	27,375	2,46,125
(Rs. 18,125 – Rs. 15,000)					
To Notional Profit (Profit for the year		58,500			
		2,79,125			**2,79,125**

Calculation of Estimated Profit

			Rs.	Rs.
1)	Material consumed	(90,000 + 3,125 – 18,125)	75,000	
	Add: Further consumption		85,750	1,60,750
2)	Wages:		81,250	
	Add : Further cost	(87,325 – 6,250)	81,075	
	Add : Outstanding		8,300	1,70,625
3)	Plant used	(25,000 – 2,875)	22,125	
	Add: Further plant introduced		31,250	
	Less : Closing balance of plant		(3,750)	49,625
4)	Establishment charges		14,625	
	Add : Further charges for nine months	(14,625× 9/12)	10,969	25,594
5)	Sundry expenses		7,250	
	Add : Further expenses		6,875	14,125
6)	Reserve for contingencies			10,800
	Estimated profit	(balancing figure)		68,481
	Contract price			5,00,000

ANSWER-B

Working Note:

(1) Total Kilometers run per annum :

= Number of Buses × Distance × Number of days in the Month × Number of trips

× 12 months

= 1 Bus ×40 kms × 25 Days × 6 Single trips (3 Round Trips) × 12 months

= 72,000 kms.

(2) Total Passenger Kilometers per annum :
Total Kilometers run per annum × Seating Capacity

= 72,000 Kms × 40 Seats = 28,80,000 Passenger-Kms.

(3) Petrol & oil Consumption per annum :
Total Kilometers run per annum × Petrol Consumption per KM

= 72,000 Kms × (Rs.500 / 100 Kms) = Rs.3,60,000

(4) Loading : If Taking is Rs.100, then Rs.10 will have to be given as Commission and Rs.15 remain as Profit. The Cost is therefore, be Rs.75. On Rs.75, the loading must be Rs.25 to make the Taking equal to Rs.100.

Statement of Cost per Passenger – Km

Particulars	**Per Annum**	**Per Passenger - Kilometer**
A. Standing Charges :		
Insurance @ 3% on Rs.10,00,000	30,000	
Taxation	20,000	
Manager-cum-accountant's salary	84,000	
Depreciation	2,00,000	
Stationary	12,000	
Total Standing Charges	**3,46,000**	0.12014
B. Running Charges:		
Diesel and other Oil	3,60,000	
Salary of Driver	36,000	
Salary of Conductor	24,000	
Total Running Charges	**4,20,000**	0.14583

C. Maintenance Charges:		
Garage Rent @ Rs.2,000 Per month	24,000	
Repairs	20,000	
Total Maintenance Charges	**44,000**	0.01528
Grand Total (A+B+C)	**8,10,000**	0.28125
Loading @ 25/75		0.09375
Fare per Passenger Kilometer		0.37500

Fare per Passenger-Km = Rs.0.375

ANSWER-6

ANSWER-A

Cost Control	Cost Reduction
1. Cost control aims at maintaining the costs in accordance with the established standards.	1. Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to better them continuously
2. Cost control seeks to attain lowest possible cost under existing conditions.	2. Cost reduction recognises no condition as permanent, since a change will result in lower cost.
3. In case of cost control, emphasis is on past and present	3. In case of cost reduction, it is on present and future.
4. Cost control is a preventive function	4. Cost reduction is a corrective function. It operates even when an efficient cost control system exists.
5. Cost control ends when targets are achieved.	5. Cost reduction has no visible end.

ANSWER-B

Cost classification based on variability

(i) **Fixed Costs –** These are the costs which are incurred for a period, and which, within certain output and turnover limits, tend to be unaffected by fluctuations in the levels of activity (output or turnover). They do not tend to increase or decrease with the changes in output. For example, rent, insurance of factory building etc., remain the same for different levels of production.

(ii) **Variable Costs –** These costs tend to vary with the volume of activity. Any increase in the activity results in an increase in the variable cost and vice-versa. For example, cost of direct labour, etc.

(iii) **Semi-variable Costs –** These costs contain both fixed and variable components and are thus partly affected by fluctuations in the level of activity. Examples of semi variable costs are telephone bills, gas and electricity etc.

ANSWER-C

Sr. No	Job Costing	Batch Costing
1	Method of costing used for non-standard and non-repetitive products produced as per customer specifica- tions and against specific orders.	Homogeneous products produced in a continuous production flow in lots.
2	Cost determined for each Job	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.
3	Jobs are different from each other and independent of each other. Each Job is unique.	Products produced in a batch are ho-mogeneous and lack of individuality

ANSWER-D

Four different methods of costing along with their applicability to concerned industry have been discussed as below:

(i) **Job Costing:** The objective under this method of costing is to ascertain the cost of each job order. A job card is prepared for each job to accumulate costs. The cost of the job is determined by adding all costs against the job it has incurred. This method of costing is used in printing press, foundries and general engineering workshops, advertising etc.

(ii) **Batch Costing:** This system of costing is used where small components/ parts of the same kind are required to be manufactured in large quantities. Here batch of similar products is treated as a job and cost of such a job is ascertained as discussed under (1), above. If in a cycle manufacturing unit, rims are produced in batches of 2,500 units each, then the cost will be determined in relation to a batch of 2,500 units.

(iii) **Contract Costing:** If a job is very big and takes a long time for its completion, then method used for costing is known as Contract Costing. Here the cost of each contract is ascertained separately. It is suitable for firms engaged in the construction of bridges, roads, buildings etc.

(iv) **Operating Costing:** The method of Costing used in service rendering undertakings is known as operating costing. This method of costing is used in undertakings like transport, supply of water, telephone services, hospitals, nursing homes etc.