Test Series: March, 2018

MOCK TEST PAPER

INTERMEDIATE (NEW): GROUP – I

PAPER – 3: COST AND MANAGEMENT ACCOUNTING

SUGGESTED ANSWERS/ HINTS

1. (a) **Process A Account**

Dr. Cr.

	₹		₹
To Materials	40,000	By Process B A/c (Transfer to Process B)	1,20,000
To Labour	40,000		
To Overheads	16,000		
	96,000		
To Profit (20% of transfer price, i.e., 25% of cost)	24,000		
	1,20,000		1,20,000

Process B Account

Dr. **Cr.**

	₹		₹
To Process A A/c (Transferred from Process A)	1,20,000	By Finished Stock A/c (Transfer to finished stock)	2,88,000
To Labour	56,000		
To Overhead	40,000		
	2,16,000		
To Profit (25% of transfer price i.e., 33.33% of cost)	72,000		
	2,88,000		2,88,000

Statement of Total Profit

	₹
Profit from Process A	24,000
Profit from Process B	72,000
Profit on Sales (₹ 4,00,000 – ₹ 2,88,000)	1,12,000
Total Profit	2,08,000

(b) Let *x* be the cost of material and *y* be the normal rate of wage/hour

	Worker A (₹)	Worker B (₹)
Material cost	x	x
Labour wages	90 y	100 y
Bonus	Rowan system	Halsey system

	$\frac{\text{Time saved}}{\text{Time allowed}} \times \text{hour worked} \times \text{rate}$	Hours saved × 50% × rate
	$\frac{30}{120} \times 90 \times y = 22.5y$	$20 \times \frac{1}{2} \times y = 10y$
Overheads	90×₹ 50 = 4,500	100×₹ 50 = 5,000
Factory cost	x + 112.5y + 4,500 = 80,200 ∴ x + 112.5y = 75,700..... (1)	x + 110y + 5,000 = 79,400 ∴ x + 110y = 74,400.... (2)

Solving (1) and (2) we get x = ₹17,200 and y = ₹ 520

(i) Normal rate of wages is ₹ 520 per hour.

(ii) Cost of materials = ₹ 17,200.

(iii) **Comparative Statement of factory cost**

	Worker A (₹)	Worker B (₹)
Material cost	17,200	17,200
Wages	46,800 (90 × ₹ 520)	52,000 (100 × ₹ 520)
Bonus	11,700 $(\frac{30}{120} \times 90 \times 520)$	5,200 $(20 \times \frac{1}{2} \times 520)$
Overheads	4,500 (90 × ₹ 50)	5,000 (100 × ₹ 50)
Factory cost	80,200	79,400

(c) Computation of Overheads

Variable Overhead per unit $= \frac{\text{Change in Factory Overheads}}{\text{Change in activity level}}$

$= \frac{23,70,000 - 22,00,000}{18,000 - 16,000}$ or $\frac{25,40,000 - 23,70,000}{20,000 - 18,000}$

$= \frac{1,70,000}{2000}$ = ₹ 85 per unit

Fixed Overhead

Activity level = 16,000 units

Particulars	Amount (₹)
Total factory overheads	22,00,000
Less: Variable overheads 16,000 units @ ₹ 85 per unit	(13,60,000)
Fixed Overhead	8,40,000

Computation of Costs at Activity Level 24,000 units

	Per Unit (₹)	Amount (₹)
Direct Material (12,80,000/16,000)	80.00	19,20,000
Direct Labour (17,60,000/16,000)	110.00	26,40,000

Variable Overhead (As calculated above)	85.00	20,40,000
Fixed Overhead		8,40,000
Total Cost		**74,40,000**

Computation of Selling Price at activity level 24,000 units

Profit required is 25% on selling price, hence cost will be 75%.

Therefore desired profit = $\frac{25 \times 74,40,000}{75}$ = ₹ 24,80,000

Cost of 24,000 units	74,40,000
Desired Profit	24,80,000
Total Sales	99,20,000

Alternatively

Total Sales = $\frac{\text{Total Cost}}{75} \times 100 = \frac{74,40,000}{75} \times 100$ = ₹ 99,20,000

Selling Price per unit = $\frac{\text{Total Sales}}{\text{No of Units}} = \frac{99,20,000}{24,000}$ = ₹ 413.33

(d) (i) Statement Showing "Activity Rate"

Activity	Activity Cost [a] (₹)	Activity Driver	No. of Units of Activity Driver [b]	Activity Rate [a] / [b] (₹)
Providing ATM Service	1,00,000	No. of ATM Transactions	2,00,000	0.50
Computer Processing	10,00,000	No. of Computer Transactions	25,00,000	0.40
Issuing Statements	8,00,000	No. of Statements	5,00,000	1.60
Customer Inquiries	3,60,000	Telephone Minutes	6,00,000	0.60

(ii) Statement Showing "Cost of Product"

Activity	Checking Accounts (₹)	Personal Loans (₹)	Gold Visa (₹)
Providing ATM Service	90,000 (1,80,000 tr.× ₹ 0.50)	---	10,000 (20,000 tr. × ₹ 0.50)
Computer Processing	8,00,000 (20,00,000 tr. × ₹ 0.40)	80,000 (2,00,000 tr. × ₹ 0.40)	1,20,000 (3,00,000 tr. × ₹ 0.40)
Issuing Statements	4,80,000 (3,00,000 st. × ₹ 1.60)	80,000 (50,000 st. × ₹1.60)	2,40,000 (1,50,000 st. × ₹ 1.60)
Customer Inquiries	2,10,000 (3,50,000 min. × ₹ 0.60)	54,000 (90,000 min. × ₹ 0.60)	96,000 (1,60,000 min. × ₹ 0.60)
Total Cost [a]	₹ 15,80,000	₹ 2,14,000	₹ 4,66,000
Units of Product [b]	30,000	5,000	10,000

Cost of each Product [a] / [b]	52.67	42.80	46.60

2. (a) Statement of Total Cost and Ranking

Item	Units	% of Total units	Unit cost (₹)	Total cost (₹)	% of Total cost	Ranking
A	12,000	15.30%	30.00	3,60,000	12.97%	2
B	18,000	22.94%	3.00	54,000	1.95%	11
C	6,000	7.65%	35.00	2,10,000	7.57%	5
D	750	0.96%	220.00	1,65,000	5.95%	7
E	3,800	4.84%	75.00	2,85,000	10.27%	4
F	400	0.51%	105.00	42,000	1.51%	12
G	600	0.76%	300.00	1,80,000	6.49%	6
H	300	0.38%	350.00	1,05,000	3.78%	10
I	3,000	3.82%	250.00	7,50,000	27.03%	1
J	20,000	25.49%	7.50	1,50,000	5.41%	9
K	11,500	14.66%	27.50	3,16,250	11.40%	3
L	2,100	2.68%	75.00	1,57,500	5.68%	8
	78,450	100.00%		27,74,750	100.00%	

Statement of classification of Inventory

Rankin	Item	% of Total units	Cost (₹)	% of Total Cost	Category
1	I	3.82%	7,50,000	27.03%	
2	A	15.30%	3,60,000	12.97%	
3	K	14.66%	3,16,250	11.40%	
4	E	4.84%	2,85,000	10.27%	
5	C	7.65%	2,10,000	7.57%	
Total		**46.27%**	**19,21,250**	**69.24%**	**A**
6	G	0.76%	1,80,000	6.49%	
7	D	0.96%	1,65,000	5.95%	
8	L	2.68%	1,57,500	5.68%	
9	J	25.49%	1,50,000	5.41%	
Total		**29.89%**	**6,52,500**	**23.53%**	**B**
10	H	0.38%	1,05,000	3.78%	
11	B	22.94%	54,000	1.95%	
12	F	0.51%	42,000	1.51%	
Total		**23.84%**	**2,01,000**	**7.24**	**C**
	12	100%	27,74,750	100%	

(b) Sales Volume 50,000 Units

Computation of existing contribution

Particulars	Per unit (₹)	Total (₹ in lakhs)
Sales	3,400	1,700
Fixed Cost	1,700	850
Profit	300	150
Contribution	2,000	1,000
Variable Cost	1,400	700

(i) Break even sales in units = $\frac{\text{Fixed Cost}}{\text{Contribution per unit}} = \frac{8,50,00,000}{2,000}$ = 42,500 units

Break even sales in rupees = 42,500 units x ₹ 3,400 = ₹ 1,445 lakhs

OR

P/V Ratio = $\frac{2,000}{3,400} \times 100$ = 58.82%

B.E.P (in rupees) = $\frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{8,50,00,000}{58.82\%}$ = ₹ 1,445 lakhs (approx.)

(ii) Number of units sold to achieve a target profit of ₹ 350 lakhs:

Desired Contribution = Fixed Cost + Target Profit

= 850 lakhs + 350 lakhs

= 1,200 lakhs

Number of units to be sold = $\frac{\text{Desired Contribution}}{\text{Contribution per unit}} = \frac{12,00,00,000}{2,000}$ =60,000 units

(iii) Profit if selling price is increased by 15% and sales volume drops by 10%

Existing Selling Price per unit = ₹ 3,400

Revised selling price per unit = ₹ 3,400 × 115% = ₹ 3,910

Existing Sales Volume = 50,000 units

Revised sales volume = 50,000 units – 10% of 50,000 = 45,000 units.

Statement of profit at sales volume of 45,000 units @ ₹ 3,910 per unit

Particulars	Per unit (₹)	Total (₹ in lakhs)
Sales	3,910.00	1,759.50
Less: Variable Costs	(1,400.00)	(630.00)
Contribution	2,510.00	1,129.50
Less: Fixed Cost		(850.00)
Profit		279.50

(iv) Volume to be achieved to earn target profit of ₹ 350 lakhs with revised selling price and reduction of 8% in variable costs and ₹ 85 lakhs in fixed cost.

Revised selling price per unit = ₹ 3,910

Variable costs per unit existing = ₹ 1,400

Revised Variable Costs

Reduction of 8% in variable costs = ₹ 1,400 – 8% of 1,400

= ₹ 1,400 – ₹ 112

= ₹ 1,288

Total Fixed Cost (existing) = ₹ 850 lakhs

Reduction in fixed cost = ₹ 85 lakhs

Revised fixed cost = ₹ 850 lakhs – ₹ 85 lakhs = ₹ 765 lakhs

Revised Contribution (unit) = Revised selling price per unit – Revised Variable Costs per units

Revised Contribution per unit = ₹ 3,910 – ₹ 1,288 = ₹ 2,622

Desired Contribution = Revised Fixed Cost + Target Profit

= ₹ 765 lakhs + ₹350 lakhs= ₹1,115 lakhs

$$\text{No. of units to be sold} = \frac{\text{Desired Contribution}}{\text{Contribution per unit}} = \frac{₹\ 1{,}115\ \text{lakh}}{₹\ 2{,}622} = 42{,}525\ \text{units}$$

3. (a) Expense Budget of R Ltd. for the period……

	Per unit (₹)	50% Capacity 60,000 units Amount (₹)	60% Capacity 72,000 units Amount (₹)
Sales **(A)**	200.00	1,20,00,000	1,44,00,000
Less: Variable Costs:			
- Direct Material	82.50	49,50,000	59,40,000
- Direct Wages	27.50	16,50,000	19,80,000
- Variable Overheads	27.50	16,50,000	19,80,000
- Direct Expenses	16.50	9,90,000	11,88,000
- Variable factory expenses (75% of ₹ 20 p.u.)	16.50	9,90,000	11,88,000
- Variable Selling & Dist. exp. (80% of ₹ 10 p.u.)	8.80	5,28,000	6,33,600
Total Variable Cost **(B)**	179.30	1,07,58,000	1,29,09,600
Contribution **(C) = (A – B)**	20.70	12,42,000	14,90,400
Less: Fixed Costs:			
- Office and Admin. exp. (100%)	--	3,45,000	3,45,000
- Fixed factory exp. (25%)	--	3,45,000	3,45,000
- Fixed Selling & Dist. exp. (20%)	--	1,38,000	1,38,000
Total Fixed Costs **(D)**	--	8,28,000	8,28,000
(C – D)	--	4,14,000	6,62,400

(b) Effective Machine hour for four-week period

= Total working hours – unproductive set-up time

= {(48 hours × 4 weeks) – {(4 hours × 4 weeks)}

= (192 – 16) hours) = 176 hours.

(i) Computation of cost of running one machine for a four week period

		(₹)	(₹)
(A)	**Standing charges (per annum)**		
	Rent	5,400.00	
	Heat and light	9,720.00	
	Forman's salary	12,960.00	
	Other miscellaneous expenditure	18,000.00	
	Standing charges (per annum)	46,080.00	
	Total expenses for one machine for four week period $\left(\frac{₹\ 46,080}{3\,\text{machines} \times 13\,\text{four} - \text{week period}}\right)$		1,181.54
	Wages (48 hours × 4 weeks × ₹ 20 × 3 operators)		11,520.00
	Bonus {(176 hours × ₹ 20 × 3 operators) ×10%}		1,056.00
	Total standing charges		13,757.54
(B)	Machine Expenses		
	Depreciation = $\left(₹\,52,000 \times 10\% \times \frac{1}{13\,\text{four - week period}}\right)$		400.00
	Repairs and maintenance (₹ 60 × 4 weeks)		240.00
	Consumable stores (₹ 75 × 4 weeks)		300.00
	Power (176 hours × 20 units × ₹ 0 .80)		2,816.00
	Total machine expenses		3,756.00
(C)	Total expenses (A) + (B)		17,513.54

(ii) Machine hour rate = $\frac{₹\ 17,513.54}{176\,\text{hours}} = ₹\,99.51$

4. (a) Stores Ledger Control A/c

Particulars	(₹)	Particulars	(₹)
To Balance b/d	1,08,000	By Work in Process A/c	5,76,000
To General Ledger Adjustment A/c	5,76,000	By Overhead Control A/c	72,000
To Work in Process A/c	2,88,000	By Overhead Control A/c (Deficiency)	21,600*
		By Balance c/d	3,02,400
	9,72,000		9,72,000

*Deficiency assumed as normal (alternatively can be treated as abnormal loss)

Work in Process Control A/c

Particulars	(₹)	Particulars	(₹)
To Balance b/d	2,16,000	By Stores Ledger Control a/c	2,88,000
To Stores Ledger Control A/c	5,76,000	By Costing P/L A/c (Balancing figures being Cost of finished goods)	14,40,000
To Wages Control A/c	2,16,000	By Balance c/d	1,44,000
To Overheads Control A/c	8,64,000		
	18,72,000		18,72,000

Overheads Control A/c

Particulars	(₹)	Particulars	(₹)
To Stores Ledger Control A/c	72,000	By Work in Process A/c	8,64,000
To Stores Ledger Control A/c	21,600	By Balance c/d (Under absorption)	1,65,600
To Wages Control A/c (₹ 2,52,000- ₹ 2,16,000)	36,000		
To Gen. Ledger Adjust. A/c	9,00,000		
	10,29,600		10,29,600

Costing Profit & Loss A/c

Particulars	(₹)	Particulars	(₹)
To Work in process	14,40,000	By Gen. ledger Adjust. A/c (Sales) (₹ 14,40,000 × 115%)	16,56,000
To Gen. Ledger Adjust. A/c (Profit)	2,16,000		
	16,56,000		16,56,000

(b) Working Notes:

Input output ratio of material processed in Department X = 100:90

Particulars	Quantity (Kg)
Material input	9,00,000
Less: Loss of material in process @ 10% of 9,00,000 kgs	(90,000)
Output	8,10,000

Output of department X is product 'P_1' and 'P_2' in the ratio of 60 : 40.

Output 'P_1' = $\frac{60 \times 8,10,000}{100}$ = 4,86,000 kgs.

Output 'P_2' = $\frac{40 \times 8,10,000}{100}$ = 3,24,000 kgs.

Statement showing ratio of net sales

Product	P_1	P_2	Total
Quantity (kgs)	4,86,000	3,24,000	8,10,000
Selling price per kg (₹)	110.00	325.00	
Sales Value (₹ in lakhs)	534.60	1,053.00	1587.60
Less: Selling Expenses (₹ in lakhs)	(28.38)	(25.00)	(53.38)
Net Sales (₹ in lakhs)	506.22	1,028.00	1,534.22
Ratio	33%	67%	100.00

Computation of Joint Costs

Particulars	Amount (₹ Lakhs)
Raw Material input 9,00,000 kgs @ ₹ 95 per kg	855.00
Direct Materials	95.00
Direct Wages	80.00
Variable Overheads	100.00
Fixed Overheads	75.00
Total	1,205.00

(i) Statement showing apportionment of joint costs in the ratio of net sales

Particulars	Amount (₹ in lakhs)
Joint cost of P_1 – 33% of ₹ 1,205 lakhs	397.65
Joint cost of P_2 – 67% of ₹ 1,205 lakhs	807.35
Total	1,205.00

(ii) Statement showing profitability at split off point

Product	P_1	P_2	Total
Net Sales Value (₹ in lakhs) – [A]	506.22	1,028.00	1,534.22
Less: Joint costs (₹ in lakhs)	(397.65)	(807.35)	(1,205.00)
Profit (₹ in lakhs) [A] – [B]	108.57	220.65	329.22

Alternative Presentation

Product	P_1	P_2	Total
Sales Value (₹ in lakhs) – [A]	534.60	1,053.00	1,587.60
Less: Joint costs (₹ in lakhs)	397.65	807.35	1,205.00
Selling Expenses	28.38	25.00	53.38
Total Cost [B]	426.03	832.35	1,258.38
Profit (₹ in lakhs) [A] – [B]	108.57	220.65	329.22

(iii) Statement of profitability of product 'YP_1'

Particulars		YP_1
Sales Value (₹ in lakhs) (Refer working note) [A]		629.55
Less: Cost of P_1	397.65	
Cost of Department Y	128.00	
Selling Expenses of Product 'YP_1'	19.00	
Total Costs [B]		544.65
Profit (₹ in lakhs) [A] – [B]		84.90

Working Note:

Computation of product 'YP_1'

Quantity of product P_1 input used = 4,86,000 kgs

Input output ratio of material processed in Department Y = 100 : 95

Particulars	Quantity (Kg)
Material input	4,86,000
Less: Loss of material in process @ 5% of 4,86,000	(24,300)
Output	4,61,700

Sales Value of YP_1 = 4,61,700 kgs @ ₹ 150 per kg = ₹ 692.55 lakhs

(iv) Determination of profitability after further processing of product P_1 into product YP_1:

Particulars	(₹ in lakhs)
Profit of Product 'P_1' {refer (ii) above}	108.57
Profit of Product 'YP_1'{refer (iii) above}	84.90
Decrease in profit after further processing	23.67

Based on the above profitability statement, further processing of product P_1 into YP_1 should not be recommended.

5. (a) Work produced by the gang 1,800 standard labour hours, i.e.,

$$\frac{1,800}{32+12+6} \text{ or } 36 \text{ gang hours}$$

Standard hours of Skilled Labour	(36 × 32)	1,152 hours
Standard hours of Semi-skilled Labour	(36 × 12)	432 hours
Standard hours of Un-skilled Labour	(36 × 6)	216 hours
Total		1,800 hours
Actual hours of Skilled Labour	(40 × 28)	1,120 hours
Actual hours of Semi-skilled Labour	(40 × 18)	720 hours
Actual hours of Un-skilled Labour	(40 × 4)	160 hours
Total		2,000 hours

Revised Standard hours (actual hours worked expressed in standard ratio)

Skilled Labour	$\frac{1,152}{1,800} \times 2,000$	1,280 hours
Semi-skilled Labour	$\frac{432}{1,800} \times 2,000$	480 hours
Unskilled Labour	$\frac{216}{1,800} \times 2,000$	240 hours
		2,000 hours

Standard Cost for Actual Output:		₹
Skilled Labour	1,152 hours @ ₹ 30	34,560
Semi-skilled Labour	432 hours @ ₹ 20	8,640
Unskilled Labour	216 hours @ ₹ 10	2,160
	1,800 hours	45,360
Actual Cost:		
Skilled Labour	1,120 hours @ ₹ 34	38,080
Semi-skilled Labour	720 hours @ ₹ 23	16,560
Unskilled Labour	160 hours @ ₹ 12	1,920
	2,000 hours	56,560

(i) **Total Labour Cost Variance**

Standard Cost- Actual Cost	₹
₹ 45,360 - ₹ 56,560	11,200 (A)

(ii) **Labour Yield Variance:**

(Standard hours for Actual Output - Revised Standard hours) × Standard Rate

Skilled	(1,152 - 1,280) × ₹ 30	3,840 (A)	
Semi -skilled	(432 - 480) × ₹ 20	960 (A)	
Un-skilled	(216 - 240) × ₹ 10	240 (A)	
		5,040 (A)	5,040 (A)

(iii) **Labour Mix Variance:**

(Revised Standard Hours - Actual Hours) × Standard Rate

Skilled	(1,280 - 1,120) × ₹ 30	4,800 (F)	
Semi-skilled	(480-720) × ₹ 20	4,800(A)	
Un-skilled	(240-160) × ₹ 10	800 (F)	
		800(F)	800 (F)

(iv) **Labour Wage Rate Variance:**

(Standard Rate - Actual Rate) × Actual Hours

Skilled	(₹ 30 - ₹ 34) × 1,120	4,480 (A)	
Semi-skilled	(₹ 20 - ₹ 23) × 720	2,160 (A)	
Un-skilled	(₹ 10 - ₹ 12) × 160	320 (A)	
		6,960 (A)	6,960 (A)

Check : Total Labour Cost Variance = Yield + Mix + Rate 11,200 (A)

(b) Operating cost statement of 'RP' Resort (P) Limited

Particulars	Cost per annum (₹ in lakhs)
Staff Salaries	680.00
Room Attendant's Wages (refer W.N-3)	286.20
Lighting, Heating & Power	300.00

Repairs, Maintenance & Renovation	180.00
Linen	30.00
Laundry charges	24.00
Interior Decoration	75.00
Sundries	30.28
Depreciation (refer W.N- 4):	
- Building	45.00
- Furniture & Fixture	9.00
- Air Conditioners	7.50
Total cost for the year	1,666.98

Computation of profit:

Let ₹ x be the rent for deluxe from.

Equivalent deluxe room days are 90,720 (refer W.N- 2)

Total takings = ₹ 90,720x

Profit is 25% of total takings.

Profit = 25% of ₹ 90,720x = ₹ 22,680x

Total takings = Total Cost + Profit

₹ 90,720x = ₹ 16,66,98,000 + ₹ 22,680x

₹ 90,720x - ₹ 22,680x = ₹ 16,66,98,000

₹ 68,040x = ₹ 16,66,98,000

$$X = \frac{₹\,116,66,98,000}{₹\,68,040} = ₹\,2,450$$

Rent to be charged for Deluxe room	₹ 2,450
Rent to be charged for Super deluxe room = Rent of deluxe room × 2 = ₹ 2,450 × 2	₹ 4,900
Rent to be charged for Luxury suite = Rent of Super Deluxe room × 1.5 = ₹ 4,900 × 1.5	₹ 7,350

Working Notes:

1. Computation of Room Occupancy

Type of Room	No. of rooms x no. of days x occupancy %	Room days
Deluxe Room	100 rooms x 360 days x 90% occupancy	32,400
Super Deluxe Room	60 rooms x 360 days x 75% occupancy	16,200
Luxury Suite	40 x 360 days x 60% occupancy	8,640
	Total	57,240

2. Computation of equivalent deluxe room days:

Rent of 'super deluxe' room is to be fixed at 2 times of 'deluxe room' and luxury suite' is 3 times of 'deluxe room'. Therefore equivalent room days would be:

Type of Room	Room days	Equivalent deluxe room days
Deluxe Room	32,400 x 1	32,400
Super Deluxe Room	16,200 x 2	32,400
Luxury Suite	8,640 x 3	25,920
	Total	90,720

3. Computation of room attendant's wages:

Room occupancy days × ₹ 500 per day

= 57,240 days × ₹ 500 = ₹ 286.20 lakhs

4. Computation of Depreciation per annum:

Particulars	Cost (₹)	Rate of Depreciation	Depreciation (₹)
Building	900,00,000	5%	45,00,000
Furniture & Fixtures	90,00,000	10%	9,00,000
Air Conditioners	75,00,000	10%	7,50,000

6. (a) 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.

(b) Single and Multiple Overhead Rates:

Single overhead rate: It is one single overhead absorption rate for the whole factory.

It may be computed as follows:

$$\text{Single overhead rate} = \frac{\text{Overhead costs for the entire factory}}{\text{Total quantity of the base selected}}$$

The base can be total output, total labour hours, total machine hours, etc.

The single overhead rate may be applied in factories which produces only one major product on a continuous basis. It may also be used in factories where the work performed in each department is fairly uniform and standardized.

Multiple overhead rate: It involves computation of separate rates for each production department, service department, cost center and each product for both fixed and variable overheads. It may be computed as follows:

$$\text{Multiple overhead rate} = \frac{\text{Overhead allocated / appportioned to each department/ cost centre or product}}{\text{Corresponding base}}$$

Under multiple overheads rate, jobs or products are charged with varying amount of factory overheads depending on the type and number of departments through which they pass. However, the number of overheads rate which a firm may compute would depend upon two opposing factors viz. the degree of accuracy desired and the clerical cost involved.

(c) 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.

(d) In batch costing the most important problem is the determination of 'Economic Batch Quantity'

The determination of economic batch quantity involves two types of costs viz, (i) set up cost and (ii) carrying cost. With the increase in the batch size, there is an increase in the carrying cost but the set-up cost per unit of the product is reduced; this situation is reversed when the batch size is reduced. Thus there is one particular batch size for which both set up and carrying costs are minimum. This size of a batch is known as economic or optimum batch quantity.

Economic batch quantity can be determined with the help of a table, graph or mathematical formula. The mathematical formula usually used for its determination is as follows:

$$EBQ = \sqrt{\frac{2DC}{C}}$$

Where,

D = Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production per annum