MOCK TEST PAPER 1

INTERMEDIATE (NEW): GROUP – I

PAPER – 3: COST AND MANAGEMENT ACCOUNTING

Suggested Answers/Hints

1. (a) (i)

Contribution per unit	=	Selling price – Variable cost
	=	Rs.100 – Rs.60
	=	Rs.40
Break-even Point	=	$\dfrac{Rs.24,00,000}{Rs.40}$
	=	60,000 units
Percentage Margin of Safety	=	$\dfrac{Actual\ Sales - Break\text{-}even\ Sales}{Actual\ Sales}$
Or, 60%	=	$\dfrac{Actual\ Sales - 60,000\ units}{Actual\ Sales}$
∴ Actual Sales	=	1,50,000 units

	(Rs.)
Sales Value (1,50,000 units × Rs.100)	1,50,00,000
Less: Variable Cost (1,50,000 units ×Rs.60)	90,00,000
Contribution	60,00,000
Less: Fixed Cost	24,00,000
Profit	36,00,000
Less: Income Tax @ 40%	14,40,000
Net Return	21,60,000

Rate of Net Return on Sales = 14.40% $\left(\dfrac{Rs.21,60,000}{Rs.1,50,00,000} \times 100 \right)$

(ii) Products

	X (Rs.)	Y (Rs.)
Selling Price *per unit*	100	150
Variable Cost *per unit*	60	100
Contribution *per unit*	40	50

Composite contribution will be as follows:

Contribution per unit $= \left(\dfrac{40}{8} \times 5 \right) + \left(\dfrac{50}{8} \times 3 \right)$

= 25 + 18.75 = Rs.43.75

Break-even Sale = 64,000 units $\left(\dfrac{Rs.28,00,000}{Rs.43.75} \right)$

Break-even Sales Mix:

X (64,000 units × 5/8) = 40,000 units

Y (64,000 units × 3/8) = 24,000 units

(b) (i) Efficiency Ratio $= \dfrac{\text{Standard Hours (for actual production)}}{\text{Actual Hours (worked)}} \times 100$

$\qquad = \dfrac{75,000 \text{ units} \times 10 \text{ hrs.}}{6,00,000 \text{ hrs.}} \times 100$

$\qquad = 125\%$

(ii) Activity Ratio $= \dfrac{\text{Standard Hours (for actual production)}}{\text{Budgeted Hours}} \times 100$

$\qquad = \dfrac{75,000 \text{ units} \times 10 \text{ hrs.}}{88,000 \text{ units} \times 10 \text{ hrs.}} \times 100$

$\qquad = 85.23\%$

(iii) Capacity Ratio $= \dfrac{\text{Actual Hours (worked)}}{\text{Budgeted Hours}} \times 100$

$\qquad = \dfrac{6,00,000 \text{ hrs.}}{88,000 \text{ units} \times 10 \text{ hrs.}} \times 100$

$\qquad = 68.18\%$

(c) Workings:

Annual production of Product X = Annual demand – Opening stock

= 5,00,000 – 12,000 = 4,88,000 units

Annual requirement for raw materials = Annual production × Material per unit – Opening stock of material

Material A = 4,88,000 × 4 units – 24,000 units = 19,28,000 units

Material B = 4,88,000 × 16 units – 52,000 units = 77,56,000 units

(i) Computation of EOQ when purchase order for the both materials is placed separately

$$EOQ = \sqrt{\dfrac{2 \times \text{Annual Requirement for material} \times \text{Ordering cost}}{\text{Carrying cost per unit per annum}}}$$

$$\text{Material A} = \sqrt{\dfrac{2 \times 19,28,000 \text{ units} \times \text{Rs.}15,000}{13\% \text{ of Rs.}150}} = \sqrt{\dfrac{38,56,000 \times \text{Rs.}15,000}{\text{Rs.}19.5}}$$

$$= 54,462 \text{ units}$$

$$\text{Material B} = \sqrt{\dfrac{2 \times 77,56,000 \text{ units} \times \text{Rs.}15,000}{13\% \text{ of Rs.}200}} = \sqrt{\dfrac{1,55,12,000 \times \text{Rs.}15,000}{\text{Rs.}26}}$$

$$= 94,600 \text{ units}$$

(ii) Computation of EOQ when purchase order for the both materials is not placed separately

$$\text{Material A \& B} = \sqrt{\dfrac{2 \times (19,28,000 + 77,56,000) \text{ units} \times \text{Rs.}15,000}{13\% \text{ of Rs.}190^*}}$$

$$= \sqrt{\frac{1,93,68,000 \times Rs.15,000}{Rs.24.7}} = 1,08,452 \text{ units}$$

$$\text{Material A} = \frac{1,08,452 \times 19,28,000}{96,84,000} = 21,592 \text{ units}$$

$$\text{Material A} = \frac{1,08,452 \times 77,56,000}{96,84,000} = 86,860 \text{ units}$$

$$* \frac{(Rs.150 \times 19,28,000) + (Rs.200 \times 77,56,000)}{(19,28,000 + 77,56,000)} = Rs.190$$

(d) **Memorandum Reconciliation Account**

	Particulars	(Rs.)		Particulars	(Rs.)
To	Net loss as per Costing books	2,25,000	By	Administrative overhead over absorbed in costs	3,000
To	Factory overheads under absorbed	5,000	By	Depreciation over charged in Cost books (Rs. 80,000 – Rs.70,000)	10,000
To	Income tax not provided in Cost books	65,000	By	Interest on investments not included in Cost books	20,000
To	Preliminary expenses written off in Financial books	3,000	By	Transfer fees not considered in Cost books	2,000
To	Over-valuation of Closing Stock of finished goods in Cost books	7,000	By	Net loss as per Financial books	2,70,000
		3,05,000			3,05,000

2. (a) (i) Absorption Costing System

Operating Income-

Particulars	Lemon	Grapes	Papaya	Total
Revenue	79,350	2,10,060	1,20,990	4,10,400
Less: Cost of Goods Sold	60,000	1,50,000	90,000	3,00,000
Less: Store Support Cost	18,000	45,000	27,000	90,000
Operating Income	1,350	15,060	3,990	20,400
Operating Income (%)	1.70	7.17	3.30	4.97

(ii) ABC System

Overhead Allocation Rate-

Activity	Total Costs (Rs.)	Quantity of Cost Allocation Base	Overhead Allocation Rate (Rs.)
Ordering	15,600	156 Purchase Orders	100.00
Delivery	25,200	315 Delivering Orders	80.00
Shelf Stocking	17,280	864 Self Stocking Hours	20.00
Customer Support	30,720	1,53,600 Items Sold	0.20

Store Support Cost-

Particulars	Cost Driver	Lemon	Grapes	Papaya	Total
Bottle Returns	Direct	1,200	0	0	1,200
Ordering	Purchase Orders	3,600	8,400	3,600	15,600
Delivery	Deliveries	2,400	17,520	5,280	25,200
Self -Stocking	Hours of time	1,080	10,800	5,400	17,280
Customer Support	Items Sold	2,520	22,080	6,120	30,720
Grand Total		10,800	58,800	20,400	90,000

Operating Income-

Particulars	Lemon	Grapes	Papaya	Total
Revenue	79,350	2,10,060	1,20,990	410,400
Less: Cost of Goods Sold	60,000	1,50,000	90,000	300,000
Less: Store Support Cost	10,800	58,800	20,400	90,000
Operating Income	8,550	1,260	10,590	20,400
Operating Income (%)	10.78	0.60	8.75	4.97

(iii) Comparison

Particulars	Lemon	Grapes	Papaya	Total
Under Traditional Costing System	1.70%	7.17%	3.30%	4.97%
Under ABC System	10.78%	0.60%	8.75%	4.97%

(b) (a) **Calculation of Total Cost for the Hostel Job**

Particulars	Amount (Rs.)	Amount (Rs.)
Direct Material Cost:		
- 15mm GI Pipe (Working Note- 1)	11,051.28	
- 20mm GI Pipe (Working Note- 2)	2,588.28	
- Other fitting materials (Working Note-3)	3,866.07	
- Stainless steel faucet		
15 units × $\left(\dfrac{6 \times ₹204 + 15 \times ₹209}{21\,\text{units}} \right)$	3,113.57	
- Valve		
6 units × $\left(\dfrac{8 \times ₹404 + 10 \times ₹402 + 14 \times ₹424}{32\,\text{units}} \right)$	2,472.75	23,091.95
Direct Labour:		
Plumber [(180 hours × Rs. 50) + (12 hours × Rs. 25)]	9,300.00	
Helper [(192 hours × Rs. 35) + (24 hours × Rs. 17.5)]	7,140.00	16,440.00
- Overheads [Rs. 13 × (180 + 192) hours]		4,836.00
Total Cost		44,367.95

(b) Price to be charged for the job work:

	Amount (Rs.)
Total Cost incurred on the job	44,367.95
Add: 25% Profit on Job Price $\left(\dfrac{44{,}367.95}{75\%}\times25\%\right)$	14,789.32
	59,157.27

Working Note:

1. Cost of 15mm GI Pipe

Date		Amount (Rs.)
17-08-2019	8 units × Rs. 600	4,800.00
28-08-2019	$10 \text{ units} \times \left(\dfrac{4\times\text{Rs.}600+35\times\text{Rs.}628}{39\,\text{units}}\right)$	6,251.28
		11,051.28

2. Cost of 20mm GI Pipe

Date		Amount (Rs.)
12-08-2019	2 units × Rs. 660	1,320.00
28-08-2019	$2 \text{ units} \times \left(\dfrac{8\times\text{Rs.}660+30\times\text{Rs.}610+20\times\text{Rs.}660}{58\,\text{units}}\right)$	1,268.28
		2,588.28

3. Cost of Other fitting materials

Date		Amount (Rs.)
12-08-2019	18 units × Rs. 26	468.00
17-08-2019	30 units × Rs. 26	780.00
28-08-2019	$34 \text{ units} \times \left(\dfrac{12\times\text{Rs.}26+150\times\text{Rs.}28}{162\,\text{units}}\right)$	946.96
30-08-2019	$60 \text{ units} \times \left(\dfrac{12\times\text{Rs.}26+150\times\text{Rs.}28}{162\,\text{units}}\right)$	1,671.11
		3,866.07

3. (a) (i) **Production Budget of 'X' for the Second Quarter**

Particulars	Bags (Nos.)
Budgeted Sales	50,000
Add: Desired Closing stock	11,000
Total Requirements	61,000
Less: Opening stock	15,000
Required Production	46,000

(ii) **Raw–Materials Purchase Budget in Quantity as well as in Rs. for 46,000 Bags of 'X'**

Particulars	'Y' Kgs.	'Z' Kgs.	Empty Bags Nos.
Production Requirements	2.5	7.5	1.0

Per bag of 'X'			
Requirement for Production	1,15,000	3,45,000	46,000
	(46,000 × 2.5)	(46,000 × 7.5)	(46,000 × 1)
Add: Desired Closing Stock	26,000	47,000	28,000
Total Requirements	1,41,000	3,92,000	74,000
Less: Opening Stock	32,000	57,000	37,000
Quantity *to be purchased*	1,09,000	3,35,000	37,000
Cost per Kg./Bag	Rs.120	Rs.20	Rs.80
Cost of Purchase (Rs.)	1,30,80,000	67,00,000	29,60,000

(iii)   **Computation of Budgeted Variable Cost of Production of 1 Bag of 'X'**

Particulars	(Rs.)
Raw – Material	
Y 2.5 Kg @120	300.00
Z 7.5 Kg. @20	150.00
Empty Bag	80.00
Direct Labour(Rs.50× 9 minutes / 60 minutes)	7.50
Variable Manufacturing Overheads	45.00
Variable Cost of Production *per bag*	582.50

(iv)   **Budgeted Net Income for the Second Quarter**

Particulars	Per Bag (Rs.)	Total (Rs.)
Sales Value (50,000 Bags)	900.00	4,50,00,000
Less: Variable Cost:		
Production Cost	582.50	2,91,25,000
Admn. & Selling Expenses (5% of Sales Price)	45.00	22,50,000
Budgeted Contribution	272.50	1,36,25,000
Less: Fixed Expenses:		
Manufacturing		30,00,000
Admn. & Selling		20,50,000
Budgeted Net Income		85,75,000

(b) (i)   **Table of Primary Distribution of Overheads**

Particulars	Basis of Apportionment	Total Amount	Production Department		Service Departments	
			Fabrication	Assembly	Stores	Maintenance
Overheads Allocated		27,28,000	15,52,000	7,44,000	2,36,000	1,96,000
Direct Costs	Actual	86,36,000	71,88,000	14,48,000	---	---

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Other Overheads:					
Factory rent	Floor Area (48:20:5:7)	15,28,000	9,16,800	3,82,000	95,500	1,33,700
Factory building insurance	Floor Area (48:20:5:7)	1,72,000	1,03,200	43,000	10,750	15,050
Plant & Machinery insurance	Value of Plant & Machinery (66:30:3:7)	1,96,000	1,22,038	55,472	5,547	12,943
Plant & Machinery Depreciation	Value of Plant & Machinery (66:30:3:7)	2,65,000	1,65,000	75,000	7,500	17,500
Canteen Subsidy	No. of employees (60:40:19:6)	4,48,000	2,15,040	1,43,360	68,096	21,504
		1,39,73,000	1,02,62,078	28,90,832	4,23,393	3,96,697

Re-distribution of Service Departments' Expenses:

Particulars	Basis of Apportionment	Production Department		Service Departments	
		Fabrication	Assembly	Stores	Maintenance
Overheads as per Primary distribution	As per Primary distribution	1,02,62,078	28,90,832	4,23,393	3,96,697
Maintenance Department Cost	Maintenance Hours (28:23:4:-)	2,01,955	1,65,891	28,851	(3,96,697)
		1,04,64,033	30,56,723	4,52,244	---
Stores Department	No. of Stores Requisition (18:7:-:-)	3,25,616	1,26,628	(4,52,244)	
		1,07,89,649	31,83,351	---	---

(ii) Overhead Recovery Rate

Department	Apportioned Overhead (Rs.) (I)	Basis of Overhead Recovery Rate (II)	Overhead Recovery Rate (Rs.) [(I) ÷ (II)]
Fabrication	1,07,89,649	30,00,000 Machine Hours	3.60 per Machine Hour
Assembly	31,83,351	26,00,000 Labour Hours	1.22 per Labour Hour

(iii) Calculation of full production costs of Job no. IGI2019.

Particulars	Amount (Rs.)
Direct Materials	2,30,400
Direct Labour:	
Fabrication Deptt. (240 hours × Rs.50)	12,000
Assembly Deptt. (180 hours × Rs.50)	9,000
Production Overheads:	

Fabrication Deptt. (210 hours × Rs. 3.60)	756
Assembly Deptt. (180 hours × Rs. 1.22)	220
Total Production Cost	2,52,376

4. (a) **COMPUTATION OF VARIANCES**

    (i) Overhead Cost Variance = Absorbed Overheads – Actual Overheads

        = (Rs.87,200 + Rs.44,800) – (Rs.1,21,520 + Rs.55,680)

        = Rs. 45,200 (A)

    (ii) Fixed Overhead Cost Variance = Absorbed Fixed Overheads – Actual Fixed Overheads

        = Rs. 87,200 – Rs.1,21,520

        = Rs.34,320 (A)

    (iii) Variable Overhead Cost Variance = Standard Variable Overheads for Production – Actual Variable Overheads

        = Rs. 44,800 – Rs. 55,680

        = Rs. 10,880 (A)

    (iv) Fixed Overhead Volume Variance = Absorbed Fixed Overheads – Budgeted Fixed Overheads

        = Rs. 87,200 – Rs.1,09,000

        = Rs. 21,800 (A)

    (v) Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads – Actual Fixed Overheads

        = Rs.10.90 × 10,000 units – Rs.1,21,520

        = Rs.12,520 (A)

    (vi) Calendar Variance = Possible Fixed Overheads – Budgeted Fixed Overheads

        = Rs.1,03,550 – Rs.1,09,000

        = Rs. 5,450 (A)

WORKING NOTE

Fixed Overheads per Unit = $\dfrac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}} = \dfrac{Rs.12,00,000}{1,20,000 \text{ units}}$	Rs. 10
Fixed Overheads element in *Semi-Variable* Overheads i.e. 60% of Rs.1,80,000	Rs. 1,08,000
Fixed Overheads per Unit = $\dfrac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}} = \dfrac{Rs.1,08,000}{1,20,000 \text{ units}}$	Rs. 0.90
Standard Rate of Absorption of Fixed Overheads *per unit* (Rs.10 + Rs.0.90)	Rs.10.90
Fixed Overheads Absorbed on 8,000 units @ Rs10.90	Rs. 87,200
Budgeted Variable Overheads	Rs. 6,00,000
Add : Variable element in Semi-Variable Overheads 40% of Rs. 1,80,000	Rs. 72,000

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Total Budgeted Variable Overheads	Rs. 6,72,000
Standard Variable Cost *per unit* = $\dfrac{\text{Budgeted Variable Overheads}}{\text{Budgeted Output}}$ = $\dfrac{\text{Rs.6,72,000}}{1,20,000\text{units}}$	Rs.5.60
Standard Variable Overheads for 8,000 units @ Rs.5.60	Rs. 44,800
Budgeted Annual Fixed Overheads (Rs. 12,00,000 + 60% of Rs. 1,80,000)	Rs.13,08,000
Possible Fixed Overheads = $\dfrac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Days}} \times$ Actual Days $= \left[\dfrac{\text{Rs.1,09,000}}{20\text{Days}} \times 19\text{Days} \right]$	Rs.1,03,550
Actual Fixed Overheads (Rs.1,10,000 + 60% of Rs. 19,200)	Rs.1,21,520
Actual Variable Overheads (Rs.48,000 + 40% of Rs.19,200)	Rs. 55,680

(b) Calculation of Cost of Production of A Ltd. for the period…..

Particulars	Amount (Rs.)
Raw materials purchased	64,00,000
Add: Opening stock	2,88,000
Less: Closing stock	(4,46,000)
Material consumed	62,42,000
Wages paid	23,20,000
Prime cost	85,62,000
Repair and maintenance cost of plant & machinery	9,80,500
Insurance premium paid for inventories	26,000
Insurance premium paid for plant & machinery	96,000
Quality control cost	86,000
Research & development cost	92,600
Administrative overheads related with factory and production	9,00,000
	1,07,43,100
Add: Opening value of W-I-P	4,06,000
Less: Closing value of W-I-P	(6,02,100)
	1,05,47,000
Less: Amount realised by selling scrap	(9,200)
Add: Primary packing cost	10,200
Cost of Production	1,05,48,000

Notes:

(i) Other administrative overhead does not form part of cost of production.

(ii) Salary paid to Director (Technical) is an administrative cost.

5. (a) (i) Calculation of total project cost per day of concession period:

Activities	Amount (Rs. in lakh)
Site clearance	170.70

Land development and filling work	9,080.35
Sub base and base courses	10,260.70
Bituminous work	35,070.80
Bridge, flyovers, underpasses, Pedestrian subway, footbridge, etc	29,055.60
Drainage and protection work	9,040.50
Traffic sign, marking and road appurtenance	8,405.00
Maintenance, repairing and rehabilitation	12,429.60
Environmental management	982.00
Total Project cost	**1,14,495.25**
Administration and toll plaza operation cost	1,120.00
Total Cost	1,15,615.25
Concession period in days (25 years × 365 days)	9,125
Cost per day of concession period (Rs. in lakh)	**12.67**

(ii) Computation of toll fee:

Cost to be recovered per day = Cost per day of concession period + 15% profit on cost

= Rs.12,67,000 + Rs.1,90,050 = Rs.14,57,050

$$\text{Cost per equivalent vehicle} = \frac{₹14,57,050}{76,444 \text{ units (Refer working note)}}$$

= Rs.19.06 per equivalent vehicle

Vehicle type-wise toll fee:

Sl. No.	Type of vehicle	Equivalent cost [A]	Weight [B]	Toll fee per vehicle [A×B]
1.	Two wheelers	Rs.19.06	1	19.06
2.	Car and SUVs	Rs.19.06	4	76.24
3.	Bus and LCV	Rs.19.06	6	114.36
4.	Heavy commercial vehicles	Rs.19.06	9	171.54

Working Note:

The cost per day has to be recovered from the daily traffic. The each type of vehicle is to be converted into equivalent unit. Let's convert all vehicle types equivalent to Two-wheelers.

Sl. No.	Type of vehicle	Daily traffic volume [A]	Weight	Ratio [B]	Equivalent Two-wheeler [A×B]
1.	Two wheelers	44,500	0.05	1	44,500
2.	Car and SUVs	3,450	0.20	4	13,800
3.	Bus and LCV	1,800	0.30	6	10,800
4.	Heavy commercial vehicles	816	0.45	9	7,344
	Total				76,444

(b) (i) Statement of profitability of an Oil Mill (after carrying out further processing) for the quarter ending 31st March 2019.

Products	Sales Value after further processing	Share of Joint cost	Additional processing cost	Total cost after processing	Profit (loss)
A	25,87,500	14,80,000	6,45,000	21,25,000	4,62,500
B	2,25,000	2,96,000	1,35,000	4,31,000	(2,06,000)
C	90,000	74,000	–	74,000	16,000
D	6,75,000	3,70,000	22,500	3,92,500	2,82,500
	35,77,500	22,20,000	8,02,500	30,22,500	5,55,000

(ii) Statement of profitability at the split off point

Products	Selling price of split off	Output in units	Sales value at split off point	Share of joint cost	Profit at split off point
A	225.00	8,000	18,00,000	14,80,000	3,20,000
B	90.00	4,000	3,60,000	2,96,000	64,000
C	45.00	2,000	90,000	74,000	16,000
D	112.50	4,000	4,50,000	3,70,000	80,000
			27,00,000	22,20,000	4,80,000

Note: Share of Joint Cost has been arrived at by considering the sales value at split off point.

6. (a) The essential features, which a good cost and management accounting system should possess, are as follows:

(i) **Informative and simple:** Cost and management accounting system should be tailor-made, practical, simple and capable of meeting the requirements of a business concern. The system of costing should not sacrifice the utility by introducing meticulous and unnecessary details.

(ii) **Accurate and authentic:** The data to be used by the cost and management accounting system should be accurate and authenticated; otherwise it may distort the output of the system and a wrong decision may be taken.

(iii) **Uniformity and consistency:** There should be uniformity and consistency in classification, treatment and reporting of cost data and related information. This is required for benchmarking and comparability of the results of the system for both horizontal and vertical analysis.

(iv) **Integrated and inclusive:** The cost and management accounting system should be integrated with other systems like financial accounting, taxation, statistics and operational research etc. to have a complete overview and clarity in results.

(v) **Flexible and adaptive:** The cost and management accounting system should be flexible enough to make necessary amendments and modification in the system to incorporate changes in technological, reporting, regulatory and other requirements.

(vi) **Trust on the system:** Management should have trust on the system and its output. For this, an active role of management is required for the development of such a system that reflects a strong conviction in using information for decision making.

(b)

Bills of Material	Material Requisition Note
1.It is document or list of materials prepared by the engineering/ drawing department.	1.It is prepared by the foreman of the consuming department.
2.It is a complete schedule of component parts and raw materials required for a particular job or work order.	2.It is a document authorizing Store-Keeper to issue material to the consuming department.
3.It often serves the purpose of a Store Requisition as it shows the complete schedule of materials required for a particular job i.e. it can replace stores requisition.	3.It cannot replace a bill of material.
4.It can be used for the purpose of quotation.	4.It is useful in arriving historical cost only.
5.It helps in keeping a quantitative control on materials drawn through Stores Requisition.	5.It shows the material actually drawn from stores.

(c) The following steps are useful for minimizing labour turnover:

(a) *Exit interview*: An interview to be arranged with each outgoing employee to ascertain the reasons of his leaving the organization.

(b) *Job analysis and evaluation*: to ascertain the requirement of each job.

(c) Organization should make use of a scientific system of recruitment, placement and promotion for employees.

(d) Organization should create healthy atmosphere, providing education, medical and housing facilities for workers.

(e) Committee for settling workers grievances.

(d)

Sr. No	Job Costing	Batch Costing
1	Method of costing used for non- standard and non- repetitive products produced as per customer specifications 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 homogeneous and lack of individuality.