SUGGESTED SOLUTION

CA INTERMEDIATE

SUBJECT- COSTING

Test Code – CIM 8673

BRANCH - () (Date :)

NOTES: (1) WORKING NOTES SHOULD FORM PART OF ANSWERS.
      (2) INTERNAL WORKING NOTES SHOULD ALSO BE CONSIDERED.
      (3) NEW QUESTION SHOULD BE ON NEW PAGE

ANSWER -1

ANSWER -A

Difference between Minimum lead time Maximum lead time = 4 days

Max. lead time – Min. lead time = 4 days

Or, Max. lead time = Min. lead time + 4 days ....(i)

Average lead time is given as 6 days i.e.

$$\frac{Max.leadtime+Min.leadtime}{2} = 6\ days ....(ii)$$

Putting the value of (i) in (ii),

$$\frac{Min.leadtime+4\ days+Min.leadtime}{2} = \textbf{6 days}$$

Or, Min. lead time + 4 days + Min. lead time   = 12 days

Or, 2 Min. lead time   = 8 days

Or, Minimum lead time = 8 days/2   = 4 days

Putting this Minimum lead time value in (i), we get Maximum lead time

= 4 days + 4 days = 8 days

(2 MARKS)

(i) Maximum consumption per day:

Re-order level = Max. Re-order period × Maximum Consumption per day

1,60,000 units = 8 days × Maximum Consumption per day

Or, Maximum Consumption per day = $\frac{1,60,000\ units}{8\ days} = 20,000\ units$

(ii) Minimum Consumption per day:

Maximum Stock Level =

Re-order level + Re-order Quantity – (Min. lead time × Min. Consumption per day)

Or, 1,90,000 units = 1,60,000 units + 90,000 units – (4 days × Min. Consumption per day)

Or, 4 days × Min. Consumption per day = 2,50,000 units – 1,90,000 units

Or, Minimum Consumption per day = $\frac{60,000\ units}{4\ days}$ = 15,000 units

(1.5*2 = 3 MARKS)

ANSWER -B

Memorandum Reconciliation Account

Dr.   Cr.

Particulars	(Rs.)	Particulars	(Rs.)
To Works overheads under recovered in Cost Accounts	48,600	By Net profit as per Costing books	48,408
To Provision for doubtful debts	17,800	By Office overheads over recovered in cost accounts	11,500
To Obsolescence loss	17,200	By Dividend received on shares	17,475
To Store adjustment (Debit)	35,433	By Interest on fixed deposit	21,650
		By Depreciation over-charged	5,000
		By Net loss as per financial accounts	15,000
	1,19,033		1,19,033

[Note: This question may also be solved by taking net loss as per financial accounts as basis.]

(5 MARKS)

ANSWER –C

Computation of Comprehensive Machine hour Rate

	Per Annum (Rs.)	Per hour (Rs.)
Fixed costs (Standing Charges)		
Depreciation $\left(\frac{Rs.122000}{2220\ hours}\right)$	1,22,000	54.95
Operators wages $\left(\frac{Rs.594000}{12\ machines} \times \frac{1}{2220\ hours}\right)$	**49,500**	**22.30**
Insurance premium	12,600	5.68
Annual maintenance cost	32,500	14.64
Apportioned cost of factory rent	**19,200**	**8.65**
	2,35,800	106.22
Variable costs:		
Electricity (12 units x 2,100 hours x Rs. 6.5)	**1,63,800**	**73.78**
Comprehensive Machine Hour rate	3,99,600	**180.00**

Working Notes:

1. Effective machine hour:

   = Budgeted working hours – maintenance time

   = (2,400 - 180) hours = **2,220 hours**.

2. Electricity consumption hours:

   = Budgeted working hours – Maintenance time – Set-up time

   = (2,400 – 180 – 120) hours = 2,100 hours.

3. Operators' wages per annum

   Basic wages (3 operators × Rs. 600 × 300 days) = Rs. 5,40,000

   Add: Production bonus (10% of Rs. 5,40,000)   Rs. 54,000

   Rs. 5,94,000

4. Depreciation per annum $= \dfrac{Rs.(12,70,000+40,000)-Rs.90,000}{10\ years}$ = Rs. 1,22,000

5. Apportioned cost for factory rent: $\dfrac{Rs.24,000\times12}{3000\ sq.ft}\times 200\ sq.ft.$ = Rs. 19,200

(5 MARKS)

ANSWER –D

Statement showing Earnings of Workers A and B

Workers	A (Rs.)	B (Rs.)
Basic Wages	100.00	160.00
Dearness Allowance (50% of Basic Wages)	50.00	80.00
Overtime Wages (Refer to Working Note 1)	15.00	----
Gross Wages earned	165.00	240.00
Less: Provident Fund (8% × Rs.100); (8% × Rs.160)	(8.00)	(12.80)
– ESI (2% × Rs.100); (2% × Rs.160)	(2.00)	(3.20)
Net Wages paid	155.00	224.00

Statement of Labour Cost

	A (Rs.)	B (Rs.)
Gross Wages (excluding overtime)	150.00	240.00
Employer's contribution to P.F. and E.S.I.	10.00	16.00
	160.00	256.00
Ordinary wages Labour Rate per hour (Rs.160 ÷ 200 hours); (Rs.256 ÷ 200 hours)	0.80	1.28

Statement Showing Allocation of Wages to Jobs

	Total Wages	Jobs		
		X	Y	Z
Worker A				
Ordinary Wages (4:3:3)	160.00	64.00	48.00	48.00
Overtime	15.00	--	15.00	--
Worker B				
Ordinary Wages(5:2:3)	256.00	128.00	51.20	76.80
	431.00	192.00	114.20	124.80

Working Notes

1. Normal Wages are considered as basic wages

Overtime $= \dfrac{2 \times (basic\ wage + D.A.) \times 10\ hours}{200\ hours}$

$= 2 \times \dfrac{Rs.150}{200} \times 10\ hours$

$= 1.50 \times 10\ hours \qquad = \qquad Rs.15$

(5 MARKS)

ANSWER -2

ANSWER -A

Calculation of Cost of Production of Arnav Metallic 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 plant & machinery	96,000
Gross Works Cost	**96,38,500**
Add: Opening value of W-I-P	4,06,000
Less: Closing value of W-I-P	(6,02,100)
Works Cost	**94,42,400**
Quality control cost	86,000
Research & development cost	92,600
Administrative overheads related with factory and production	9,00,000
Less: Amount realised by selling scrap	(9,200)
Add: Primary packing cost	10,200
Cost of Production	**1,05,22,000**

Notes:

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

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

(10 MARKS)

ANSWER –B

(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

(2 MARKS)

(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 (46,000 × 2.5)	3,45,000 (46,000 × 7.5)	46,000 (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

(3 MARKS)

(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

(2 MARKS)

(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

(3 MARKS)

ANSWER -3

ANSWER -A

(i) Calculation of Raw Material inputs during the month:

Quantities Entering Process	Litres	Quantities Leaving Process	Litres
Opening WIP	1,600	Transfer to Finished Goods	8,400
Raw material input (balancing figure)	8,320	Process Losses	1,200
		Closing WIP	320
	9,920		9,920

(2 MARKS)

(ii) Calculation of Normal Loss and Abnormal Loss/Gain

	Litres
Total process losses for month	1,200
Normal Loss (10% input)	832
Abnormal Loss (balancing figure)	368

(2 MARKS)

(iii) Calculation of values of Raw Material, Labour and Overheads added to the process:

	Material	Labour	Overheads
Cost per equivalent unit	Rs.46.00	Rs.14.00	Rs.18.00
Equivalent units (litre) (refer the working note)	7,488	7,744	7,872
Cost of equivalent units	Rs.3,44,448	Rs.1,08,416	Rs.1,41,696
Add: Scrap value of normal loss (832 units × Rs.15)	Rs.12,480	--	--
Total value added	Rs.3,56,928	Rs.1,08,416	Rs.1,41,696

Workings:

Statement of Equivalent Units (litre):

Input Details	Units	Output details	Units	Equivalent Production					
				Material		Labour		Overheads	
				Units	(%)	Units	(%)	Units	(%)
Opening WIP	1,600	Units completed:							
Units introduced	8,320	- Opening WIP	1,600	--	--	480	30	640	40
		- Fresh inputs	6,800	6,800	100	6,800	100	6,800	100
		Normal loss	832	--	--	--	--	--	--
		Abnormal loss	368	368	100	368	100	368	100
		Closing WIP	320	320	100	96	30	64	20
	9,920		9,920	7,488		7,744		7,872	

(4 MARKS)

(iv) Process Account for the month

	Litres	Amount (Rs.)		Litres	Amount (Rs.)
To Opening WIP	1,600	1,06,560	By Finished goods [8400 x Rs. 78]	8,400	6,55,200
To Raw Materials	8,320	3,56,928	By Normal loss [832 x Rs. 15]	832	12,480
To Wages	--	1,08,416	By Abnormal loss [368 x Rs. 78]	368	28,704
To Overheads	--	1,41,696	By Closing WIP [(320 x Rs. 46) +(320 x .30 x Rs. 14) + (320 x .20 x Rs. 18)]	320	17,216
	9,920	**7,13,600**		**9,920**	**7,13,600**

ANSWER -B

Working notes:

(i) Total support cost:

	(Rs.)
Bottles returns	60,000
Ordering	7,80,000
Delivery	12,60,000
Shelf stocking	8,64,000
Customer support	15,36,000
Total support cost	45,00,000

(ii) Cost for each activity cost driver:

Activity (1)	Total cost (Rs.) (2)	Cost allocation base (3)	Cost driver rate (4) = [(2) ÷ (3)]
Ordering	7,80,000	1,560 purchase orders	Rs.500 per purchase order
Delivery	12,60,000	3,150 deliveries	Rs.400 per delivery
Shelf-stocking	8,64,000	8,640 hours	Rs.100 per stocking hour
Customer support	15,36,000	15,36,000 items sold	Rs.1 per item sold

Statement of Total cost and Operating income

	Soft drinks (Rs.)	Fresh Produce (Rs.)	Packaged Food (Rs.)	Total (Rs.)
Revenues: (A)	39,67,500	1,05,03,000	60,49,500	2,05,20,000
Cost & Goods sold	30,00,000	75,00,000	45,00,000	1,50,00,000
Bottle return costs	60,000	0	0	60,000
Ordering cost* (360:840:360)	1,80,000	4,20,000	1,80,000	7,80,000
Delivery cost* (300:2190:660)	1,20,000	8,76,000	2,64,000	12,60,000
Shelf stocking cost* (540:5400:2700)	54,000	5,40,000	2,70,000	8,64,000
Customer Support cost* (1,26,000:11,04,000:3,06,000)	1,26,000	11,04,000	3,06,000	15,36,000

	35,40,000	1,04,40,000	55,20,000	1,95,00,000
Total cost: (B)	35,40,000	1,04,40,000	55,20,000	1,95,00,000
Operating income C:{(A)- (B)}	4,27,500	63,000	5,29,500	10,20,000

* Refer to working note (ii)

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(6 MARKS)

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ANSWER -4

ANSWER -A

(a) **Statement of Total cost:**

	(Rs.)
Staff salary	4,00,000
Room attendants' salary (Rs. 10 × 46,800 room-days)	**4,68,000**
Lighting expenses (Rs. 250 × 1,560 room-months)	**3,90,000**
Power expenses (Rs. 100 × 480 room-months)	**48,000**
Repairs to building	50,000
Linen	24,000
Sundries Expenses	70,770
Interior decoration and furnishing	50,000
Depreciation on Building (Rs. 20 Lakhs × 5%)	**1,00,000**
Depreciation on other Equipment (Rs. 5 Lakhs × 10%)	**50,000**
Total cost excluding interest	16,50,770
Add: Profit Margin (20% on cost excluding interest)	**3,30,154**
Add: Interest on investments (Rs. 25 Lakhs × 5%)	1,25,000
Total Rent to be charged	**21,05,924**

Calculation of Room Rent per day:

Total Cost / Equivalent Room days = Rs. 21,05,924 ÷ 46,800 = **Rs.44.99 or Rs. 45**

Note: It is assumed that staff salary of Rs. 4,00,000 is per annum.

Working Notes:

Total Room days in a year

Season	Occupancy (Room-days)	Equivalent occupied room-month
Summer – 90% Occupancy	200 Rooms × 90% × 6 months × 30 days in a month = 32,400 Room Days	32,400 ÷ 30 days = 1,080 room-month
Winter – 40% Occupancy	200 Rooms × 40% × 6 months × 30 days in a month = 14,400 Room Days	14,400 ÷ 30 days = 480 room-month
Total Room Days	32,400 + 14,400 **= 46,800 Room** Days	1,560 room-month

ANSWER -B

Production Statement

For the year ended 31st March, 2020

	Amount (Rs.)
Direct materials	18,00,000
Direct wages	15,00,000
Prime Cost	33,00,000
Factory overheads	9,00,000
Cost of Production	42,00,000
Administration overheads	8,40,000
Selling and distribution overheads	10,50,000
Cost of Sales	60,90,000
Profit	12,18,000
Sales value	73,08,000

Calculation of Rates:

1. Percentage of factory overheads to direct wages $= \frac{Rs.9,00,000}{Rs.15,00,000} \times 100$ = 60%

2. Percentage of administration overheads to Cost of production

   $= \frac{Rs.8,40,000}{Rs.42,00,000} \times 100$ = 20%

3. Selling and distribution overheads = Rs.10,50,000 × 115% = Rs.12,07,500

   Selling and distribution overhead % to Cost of production

   $= \frac{12,07,500}{4,20,000} \times 100$ = 28.75%

4. Percentage of profit to sales $= \frac{12,18,000}{73,08,000} \times 100$ = 16.67% or , 1/6

(ii) Calculation of price for the job received in 2019-20

	Amount (Rs.)
Direct materials	4,80,000
Direct wages	3,00,000
Prime Cost	7,80,000
Factory overheads (60% of Rs.3,00,000)	1,80,000
Cost of Production	9,60,000
Administration overheads (20% of Rs.9,60,000)	1,92,000
Selling and distribution overheads (28.75% of Rs.9,60,000)	2,76,000
Cost of Sales	14,28,000
Profit (1/5 of Rs.14,28,000)	2,85,600
Sales value	17,13,600

ANSWER -5

ANSWER -A

Workings:

(a) Variable overhead rate per unit

= Difference in total overheads at two levels/ Difference in out- put at two level

= (2,70,000 - 2,10,000) /(14,000-10,000) = 60,000/ 4,000 = Rs. 15 per unit

(b) Fixed overhead = 2,70,000 - (14000 X 15) = Rs.60,000

(c) Standard Fixed Overhead Rate per Hour = 4 - 3 = 1

(d) Standard Hour Per Unit = Standard hours rate per unit / standard overhead rate per hour = 20 ÷ 4 = 5 hours

(e) Actual Variable Overhead = 2,95,000 – 62,500= 2,32,000

(f) Actual Variable Overhead per Hour = 2,32,500/74,000= 3.1419

(g) Budgeted hours = 15,000 X 5 = 75,000 hours

(h) Standard variable overhead rate per hour

= Variable overheads/budgeted hours =15,000 X 15 / 75,000 = Rs.3.00 per hour

(i) Standard Hours for Actual Production= 15,560 X 5 = 77,800 hours

(4 MARKS)

(i) Variable Overhead efficiency and expenditure Variance:

Variable overhead efficiency variance = Standard Rate per Hour (Std. Hours –

Actual Hours)

= 3 (77,800 -74,000) = 11,400 (F)

Variable overhead expenditure variance = Actual Hours (Std. Rate per Hour-Actual

Rate per Hour)

= 74,000 (3 - 3.1419) = 10,500 (A)

(2 MARKS)

(ii) Fixed overhead efficiency and expenditure variance:

Fixed overhead efficiency variance = Std. Rate per Hour (Std. Hours - Actual Hours)

= 1(77,800-74,000) = 3,800(F)

Fixed overheads Capacity variance = Std. Rate per Hour (Actual Hours-

Budgeted Hours)

= 1(74,000 – 75,000)

= 74,000 - 75,000 = 1,000 (A)

Standard Fixed overhead rate per hour is calculated with the help of budgeted hours and the Fixed overhead efficiency and expenditure variance is calculated as follows:

Standard fixed overhead rate per hour

= Fixed overheads/budgeted hours= 60,000 ÷ 75,000 = Rs.0.80 per hour

(2 MARKS)

(ii) Fixed overhead efficiency and capacity variance

Fixed overhead efficiency Variance*   = Std. Rate per hour (Std. hours - Actual hours)

= Rs. 0.80 (15,560 × 5 - 74,000) = Rs.3,040 (F)

Fixed overhead capacity variance*   = Std. Rate per hour (Actual hours- Budgeted hours)

= Rs. 0.80 (74,000 – 15,000 x 5) = Rs. 800 (A)

(2 MARKS)

ANSWER –B

Sales Volume 50,000 Units
Computation of existing contribution

Particulars	Per unit (Rs.)	Total (Rs. 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 $= \frac{Fixed\ cost}{Contribution\ per\ unit} = \frac{85,00,000}{2,000} = 42,500\ units$

Break even sales in rupees = 42,500 units × Rs. 3,400 = Rs. 1,445 lakhs

OR

P/V Ratio $= \frac{2000}{3400} \times 100$ =58.82%

B.EP (Rupees) $= \frac{Fixed\ cost}{P/V\ ratio} = \frac{8,50,00,000}{58.82\%}$ = Rs. 1,445 lakhs (approx.)

(2 MARKS)

(ii)   Number of units sold to achieve a target profit of Rs.350

lakhs: Desired Contribution   = Fixed Cost + Target Profit

= 850 L + 350 L   = 1,200L

$$\text{Number of units to be sold} = \frac{Desired\ contribution}{Contribution\ per\ unit} = \frac{1,20,00,000}{2,000} = 60,000\ units$$

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(2 MARKS)

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

Existing Selling Price per unit = Rs. 3,400

Revised selling price per unit = Rs. 3,400 x 115% = Rs. 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 @ Rs. 3910 per unit

Particulars	Per unit (Rs.)	Total (Rs. 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

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(3 MARKS)

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

Revised selling price per unit = Rs. 3,910

Variable costs per unit existing = Rs.1,400

Revised Variable Costs

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

$$= Rs.\ 1,400 – Rs.112$$

$$= Rs.1,288$$

Total Fixed Cost (existing) = Rs. 850 lakhs

Reduction in fixed cost = Rs. 85 lakhs

Revised fixed cost = Rs. 850 lakhs – Rs. 85 lakhs = Rs.765 lakhs

Revised Contribution (unit) = Revised selling price per unit – Revised

Variable Costs per units Revised

Contribution per unit = Rs. 3,910 – Rs. 1,288 = Rs. 2,622

Desired Contribution = Revised Fixed Cost + Target Profit

$$= \text{Rs. 765 lakhs} + \text{Rs.350 lakhs} = \text{Rs.1,115 lakhs}$$

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

(3 MARKS)

ANSWER -6

ANSWER -A

Escalation clause in a contract empowers a contractor to revise the price of the contract in case of increase in the prices of inputs due to some macro-economic or other agreed reasons. A contract takes longer period to complete and the factors based on which price negotiation is done at the time of entering into the contract may change till the contract completes. This protect the contractor from adverse financial impacts and empowers the contractor to recover the increased prices. As per this clause, the contractor increases the contract price if the cost of materials, employees and other expenses increase beyond a certain limit. Inclusion of such a clause in a contract deed is called an "Escalation Clause".

(5 MARKS)

ANSWER -B

Statement of cost per batch and per order

No. of batch = 600 units ÷ 50 units = 12 batches

Particulars	Cost per batch (Rs.)	Total Cost (Rs.)
Direct Material Cost	500.00	6,000
Direct Wages	50.00	600
Oven set-up cost	150.00	1,800
Add: Production Overheads (20% of Direct wages)	10.00	120
Total Production cost	710.00	8,520
Add: S&D and Administration overheads (10% of Total production cost)	71.00	852
Total Cost	781.00	9,372
Add: Profit (1/3rd of total cost)	260.33	3,124
Selling price	1,041.33	12,496

(5 MARKS)

ANSWER -C

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.

(5*1 = 5 MARKS)

ANSWER -D

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.

(5*1 = 5 MARKS)