PAVENDAR BHARATHIDASAN
COLLEGE OF ARTS & SCIENCE

Subject: COST ACCOUNTING
Sub.Code: 16CCCCM7

OVERHEADS:

Meaning of Overhead:

Overhead is defined as, "the aggregate of indirect material cost, indirect wages & indirect expenses".

Classification of O/H:

① According to Nature:
1. Indirect Material — cotton waste
2. Indirect labour — Wages of mechanic
3. Indirect expenses — Office expense

② According to function:
1. Factory O/H — factory Rent
2. Administrative O/H — Office Rent
3. Selling O/H — Salaries of Sales Manager
4. Distribution O/H — packaging charges

③ According to Variability:
1. Fixed O/H — Salary, Rent etc
2. Variable O/H — electricity charges
3. Semi-Variable O/H — expenses based on output

④ According to Normality:
1. Normal O/H
2. Abnormal O/H.

⑤ According to controllability:

1. Controllable O/H
2. Uncontrollable O/H.

Bases of Apportionment.

Mention the bases of apportionment of the following expenses to departments.

1. Rent
2. Lighting
3. power
4. Supervision
5. Advertising
6. Indirect wages
7. Time-keeping
8. Municipal taxes
9. Staff recreation
10. Depreciation of plant & Machinery
11. Insurance of plant & machinery
12. Repairs of plant.
13. Material handling charges
14. Canteen expenses
15. Welfare expenses.
16. Stores overheads
17. Indirect Material
18. Insurance of Stock.

Expenses	Bases of Apportionment
1. Rent	Floor area.
2. Lighting	Light points / Floor area
3. Power	Kilo watt hours.
4. Supervision	No. of employees
5. Advertising	Actual expenses / % of sales
6. Indirect wages	Direct wages
7. Time-keeping	No. of employees
8. Municipal taxes	Floor area.
9. Staff recreation	No. of employees
10. Depreciation of plant & Machinery	Machine hours / Value of P&M.
11. Insurance of	Value of plant & Machinery
12. Repairs of plant	Value of plant.
13. Material handling charges	Value of materials
14. Canteen expenses	No. of employees
15. Welfare expenses	No. of employees

16.	Stores O/H.	Material consumed by each department.
17.	Indirect Material	Direct Material.
18.	Insurance of Stock	Value of Stock.

(P1) Shiva Industries Ltd., has 4 departments. A, B & C are production departments and D is the service department. The actual expenses for a month were as follows.

Particulars	Rs.
Rent	6,000
Repairs to plant	3,600
Depreciation	2,700
Lighting charges	600
Supervision	9000
Insurance of Stock	3000
Power	5400
Employee's Insurance – Employer's liability	900

The following information is also available

	Dept A	Dept B	Dept C	Dept C
Area in Sq. ft.	300	220	180	100
No. of Workers	48	32	24	16
Total Wages (Rs)	8,000	6,000	4,000	2,000
Value of plant (Rs)	24,000	18,000	12,000	6,000
Value of Stock (Rs)	15,000	9,000	6,000	—

Apportion the costs to four departments on the most equitable method.

Overhead Distribution Summary:

Expenses	Basis of Apportionment	Total Rs.	Departments A Rs.	B Rs.	C Rs.	D Rs.
Rent	Area (15:11:9:5)	6,000	2,250	1,650	1,350	750
Repairs to plant	Plant value (4:3:2:1)	3,600	1440	1080	720	360
Depreciation	Plant value (4:3:2:1)	2,700	1,080	810	540	270
Lighting	Area (15:11:9:5)	600	225	165	135	75
Supervision	No. of workers (6:4:3:2)	9,000	3,600	2,400	1800	1200
Insurance of Stock	Stock Value (5:3:2)	3,000	1,500	900	600	-
Power	Plant value (4:3:2:1)	5,400	2,160	1620	1,080	540
Employee's insurance - Employer's liability	Wages (4:3:2:1)	900	360	270	180	90

Workings: Area = 300 : 220 : 180 : 100 ÷ 2
150 110 90 50
15 : 11 : 9 : 5
etc.

(P2) Prepare Overhead distribution summary from the details. & compute the departmental O/H rate for each of the production department assuming that O/Hs are recovered as a percentage of direct wages.

Particulars.	Production Departments			Service Departments	
	A	B	C	X	Y
Direct Wages (Rs)	7,000	6,000	5,000	1,000	1,000
Direct material (Rs)	3,000	2,500	2,000	1,500	1,000
No. of workers:	200	150	150	50	50
Electricity (Kwh)	8,000	6,000	6,000	2,000	3,000
Light points (No)	10	15	15	5	5
Asset Values (Rs)	50,000	30,000	20,000	10,000	10,000
Area occupied (Sq.ft)	800	600	600	200	200

The expenses during the period were:

	Rs.		Rs
Stores O/H	400	Depreciation	6,000
Motive power	1,500	Repairs & maintenance	1,200
Lighting	200	General O/H	10,000
Labour welfare	3,000	Rent & taxes	600

Apportion the expenses of department X in the ratio of 4:3:3 & department Y in the proportion to direct wages to department A, B & C respectively.

Solun: D. Wages = 7000 : 6000 : 5000 : 1000 : 1000
= 7 : 6 : 5 : 1 : 1

D. Material = 3000 : 2500 : 2000 : 1500 : 1000 ÷ 5
= 6 : 5 : 4 : 3 : 2

No. of Workers = 200 : 150 : 150 : 50 : 50 ÷ 5
= 4 : 3 : 3 : 1 : 1

Overhead Distribution Summary.

Expenses	Basis of Apportionment	Total Rs.	Production depts			Service depts	
			A Rs.	B Rs.	C Rs.	X Rs.	Y Rs.
Stores O/H.	Direct material (6:5:4:3:2)	400	120	100	80	60	40
Motive Power	Kilo Watt hour (8:6:6:2:3)	1500	480	360	360	120	180
Lighting	No. of points (2:3:3:1:1)	200	40	60	60	20	20
Labour Welfare	No. of workers (4:3:3:1:1)	3000	1000	750	750	250	250
Depreciation	Asset value (5:3:2:1:1)	6000	2500	1500	1000	500	500
Repairs & maintenance	Asset value (5:3:2:1:1)	1200	500	300	200	100	100
General O/H.	Direct wages (7:6:5:1:1)	10000	3500	3000	2500	500	500
Rent & Taxes	Area (4:3:3:1:1)	600	300	150	150	50	50
		22900	8340	6220	5100	1600	1640
Direct Material	Actual	2500	—	—	—	1500	1000
Direct Wages	Actual	2000	—	—	—	1000	1000
Total		27400	8340	6220	5100	4100	3640

Total		27400	8340	6220	5100	4100	3640
Apportionment of Service Dept expenses to							
Dept X.	4:3:3		1640	1230	1230	4100	—
Dept Y	D. Wages (7:6:5)		1416	1213	1011	—	3640
Total			11396	8663	7341	—	—

Note:

D. Materials & D. Wages of production departments are direct cost. As they are not overheads, they are not included in the distribution summary.

Calculation of OH rates:

$$\text{Overhead rate} = \frac{\text{Overheads}}{\text{Direct wages}} \times 100$$

Department A $= \frac{11396}{7000} \times 100 = 162.8\%$

Dept B $= \frac{8663}{6000} \times 100 = 144.4\%$

Dept C $= \frac{7341}{5000} \times 100 = 146.8\%$

(P3) REPEATED DISTRIBUTION METHOD.

You are supplied with the following information. Calculate overheaded hourly rate in respect of production departments A, B & C. The primary OHs are:

Pdtn dept:	Rs:	Service departments	Rs.
A	7810	X	4000
B	12543	Y	2600
C	4547		

Expenses of Service departments X & Y are apportioned as under:

	A	B	C	X	Y
X	30%	40%	20%	—	10%
Y	10%	20%	50%	20%	—

Estimated working hours are A - 1000 ; B - 2500 C - 1400.

Solution: Secondary O/H Distribution Summary. (Repeated Distribution Method)

Particulars	Production Dept			Service Dept	
	A Rs.	B Rs.	C Rs.	X Rs.	Y Rs.
Primary O/Hs	7810	12543	4547	4000	2600
Apportionment of OHs of Service dept.					
Dept X (3:4:2:1)	1200	1600	800	-4000	400
	9010	14143	5347	—	3000
Dept Y (1:2:5:2)	300	600	1500	600	-3000
	9310	14743	6847	600	—
Dept X (3:4:2:1)	180	240	120	-600	60
	9490	14983	6967	—	60
Dept Y (1:2:5:2)	6	12	30	12	-60
	9496	14985	6997	12	—
Dept X (3:4:2:1)	4	5	3	-12	—
Total	9500	14990	7000	—	—

Calculation of hourly O/H Rate

Hrly O/H Rate = Departmental O/H / Working hours

Dept. A = 9500/1000 = Rs. 9.50

Dept B = 15000/2500 = Rs. 6.00

Dept C = 7000/1400 = Rs. 5.00

ABSORPTION OF OVERHEADS:

(P4) Calculate labour hour rate from the following:

Total No. of workers	100
Working days in a year	300
No. of hrs per day worked	8
Idle time 5%.	
Factory O/H.	Rs. 11,40,000
Gift to workers	Rs. 7,000

Solution: Labour hour rate = $\frac{\text{Factory Overhead}}{\text{No. of labour hours worked.}}$

No. of labour hours worked:

= No. of workers × Working days in a year × No. of hours per day

= 300 × 100 × 8 = 240,000

Less: Idle time 5% × 240000 = 12,000

No. of labour hour worked = 2,28,000

∴ Labour hr rate = $\frac{\text{Factory O/H}}{\text{No. of hr worked}}$

= $\frac{11,40,000}{228000}$ = Rs 5 per hr

Note: Gift to workers — administrative O/H

So it is not included in factory O/H.

(P5) The following details pertain to production department

Material consumed	–	Rs 60,000
Direct wages	–	36,000
Machine hours	–	18,000
Labour hour worked	–	27,000
Factory overhead	–	54,000
Output during the year	–	9,000

Calculate O/H absorption rate under different methods possible from the above data

Solution:

Direct material Percentage Rate $= \frac{\text{Factory overheads}}{\text{Direct material}} \times 100$

$= \frac{54000}{60000} \times 100 = 90\%$

Direct Wages Percentage Rate $= \frac{\text{Factory overheads}}{\text{Direct wages}} \times 100$

$= \frac{54000}{36000} \times 100 = 150\%$

Prime cost percentage Rate $= \frac{\text{Factory overhead}}{\text{Prime Cost}} \times 100$

Prime cost = D. material + D. Wages

$= 60000 + 36000 = 96000$

Prime cost % Rate $= \frac{54000}{96000} \times 100 = 56.25\%$

Labour hour Rate $= \frac{\text{Factory overhead}}{\text{Labour hours}}$

$= \frac{54000}{27000} = \text{Rs. } 2 \text{ per hour}$

Machine hour Rate $= \frac{\text{Factory overhead}}{\text{Machine hours}}$

$= \frac{54000}{18000} = \text{Rs } 3 \text{ per hour}$

Absorption Rate per unit of output $= \frac{\text{Factory overhead}}{\text{Output}}$

$= \frac{54000}{9000} = \text{Rs. } 6 \text{ per unit}$

P6

UNDER OR OVER ABSORPTION OF OVERHEADS.

During the year ended 31st March... the factory overhead costs of 3 production departments of an organisation are as under:

X – Rs. 47500 ; Y – Rs. 88900 ; Z – Rs 62750.

The basis of apportionment of overheads is given below.

Dept X – Rs. 5 per machine hour for 10000hours

Dept Y – 75% of direct labour cost of Rs 1,20,000

Dept Z – Rs 4 per unit for 15,000units

Prepare a Statement showing department-wise under or over absorption of overheads.

Solution:

Overheads absorbed:

		Rs.
Dept X	Rs 5 × 10000hrs =	50,000
Dept Y	Rs 120000 × 75/100 =	90,000
Dept Z	Rs. 4 × 15000units =	60,000
		2,00,000

Statement showing under/over absorption of Overheads.

Departments	Overheads Incurred Rs.	Overheads Absorbed Rs.	Under absorption Rs	Over absorption Rs.
X	47,500	50,000	–	2,50
Y	88,900	90,000	–	1,10
Z	62,750	60,000	2,750	–
			2,750	360

JOB COSTING:

Job costing is a method of ascertaining costs of an individual job or work order separately. This method of costing is adopted in printing processes, engineering firms, repair shops, automobile garages etc. It is also known as terminal costing or specific order costing.

(P1) The following information is available from the job ledger in respect of Job No. 606

Materials Rs. 3400

Wages 80 hours @ Rs 2.50

Variable overheads incurred for all jobs is Rs. 6000 for 4000 labour hours. Calculate the profit earned on Job No. 606 if it is billed for Rs. 4220:

Solution:

Job Cost Sheet (Job No. 606)

Particulars.	Amt. Rs.
Materials	3,400
Wages 80 hours @ Rs. 2.50	200
Variable overhead 80 hrs @ Rs. 1.50	120
Total cost	3,720
Profit (Balancing figure)	500
Billed Amount.	4,220

(1) Variable overheads per hour = $\frac{\text{Rs. } 6000}{4000}$ = Rs. 1.50

(2) The following direct costs were incurred of Job No. 202 of Varaja Industries

Materials - Rs. 4,300

Wages: Dept A 60 hours @ Rs. 3 per hour
Dept B 40 hours @ Rs 2 per hour.
Dept C 20 hours @ Rs 5 per hour.

Overhead expenses of these departments were estimated as under. Variable overheads

Dept A Rs. 5000 for 5000 labour hours
Dept B Rs. 3000 for 1,500 labour hrs
Dept C Rs 1500 for 500 labour hours

Fixed overheads are estimated at Rs. 20,000 for 10000 normal working hours.

Calculate the cost of Job No. 202 & the price to give a profit of 25% on Selling price.

Solution:

Job cost Sheet (Job No. 202)

Particulars	Amt Rs.	Amt Rs.
Direct material		4,300
Wages: Dept A 60hrs × Rs. 3	180	
B 40hrs × Rs. 2	80	
C 20hrs × Rs 5	100	360
Variable O/H:		
Dept A: For 5000 labour hrs. = Rs 5000:		
For 60 labour hrs = $\frac{5000}{5000} \times 60$	60	
Dept B: For 1500 labour hrs = Rs. 3000		
For 40 labour hrs = $\frac{3000}{1500} \times 40$	80	
Dept C: For 500 labour hrs = Rs. 1500		
For 20 hours = $\frac{1500}{500} \times 20$	60	200

Fixed O/H:

Total no. of hours spent on Job 120
(A - 60 + B 40 + C 20 = 120)

For 10000 working hrs FOH = Rs 20000

For 120 working hrs FOH = $\frac{20000}{10000} \times 120$ = 240

Total cost	5100
Profit	1700
Selling Price	6800

Calculation of profit

Profit is 25% on Selling price.

	Rs.
Selling price is assumed as	100
Less: profit at 25%	25
Cost →	75

If cost is Rs 75, profit = Rs. 25

If cost is Rs 5100; profit = $\frac{25}{75} \times 5100$

= Rs 1700/-

(P3) Jothi Printers undertook two jobs during the 1st week of June. The following details are available.

	Job 501 (Rs)	Job 601 Rs.
Materials supplied	40,000	20,000
Wages paid	9,000	6,000
Direct expenses	2,000	1,000
Material transfer from job 601 to 501	2,000	2,000
Material returned to Stores	—	1,000

Find the cost of each job and profit or loss if any assuming that job 601 is completed & invoiced to the customer at Rs. 30,000.

Solun:

Job 501 Account.

To Materials	10000	By bal c/d.	53,000
To Wages	9000		
To Direct expenses	2000		
To Materials transfered from job 601	2,000		
	53,000		53,000

Job 601 Account.

To Material	20000	By Material transfer to job 501	2,000
To Wages	6000		
To D. Expenses	1,000	By Material returned to Stores	1,000
To P & L a/c (Profit transfered)	6,000	By Sales	30,000
	33,000		33,000

(P4) From the following particulars relating to Job No. 164. ascertain the total cost & estimated selling price.

D. Material - 17,600 ; D. Wages - 8000

Work o/H are recovered on the basis of 50% on Prime cost.

Administrative o/H 10% of work cost.

A profit of 10% on total cost is to be added.

Solun:

Job cost Sheet (Job No. 164)

D. Material	17600
D. Wages	8000
Prime cost	25600
Work o/H (50% x 25600)	12800
Work cost	38400

15 dl

Work cost	38400
Administrative O/H (10% on 38400)	3840
Total cost	42240
PROFIT (10% on 42240)	4224
Selling price.	46464

CONTRACT COSTING:

Contract costing is a form of specific order costing. It is applicable where the work is undertaken according to the specifications of the customer & each work is of a long duration. Eg) construction of plant, buildings, dams, roads etc.

Specimen of a contract a/c.

Contract No. 109 A/c.

Particulars	Rs.	Particulars	Rs.
To Material issued	xxx	By Work in Progress:	
To Direct wages	xxx	Work certified	
To Direct expenses	xxx	Work uncertified	
To Indirect expenses	xxx	By Mtl returned to stores	xxx
To plant issued	xxx	By Plant returned to stores	xxx
To Notional profit c/d	xxx	By Mtl at site at the end	xxx
		By Plant at site at the end	xxx
	xxx		xxx
To profit & loss a/c	xxx	By Notional profit b/d	xxx
To Work-in-Progress (Reserve)	xxx		
	xxx		xxx

(P1) From the following information given below, calculate the profit that can be credited to profit & loss a/c:

	Rs.
Notional profit	79000
Cash	330000
Work certified	400000
Contract price	600000

Solu:

	Rs.
Work certified	400000
Contract price	600000

Work certified is more than one-half of the contract price. Therefore, profit that can be certified to profit & loss a/c

$$= \text{Notional profit} \times \frac{2}{3} \times \frac{\text{Cash received}}{\text{Work certified.}}$$

$$= 79000 \times \frac{2}{3} \times \frac{330000}{400000}$$

$$= \text{Rs. } 43,450/-$$

(P2) The following expenses were incurred on an unfinished contract during the year 2009

Material Rs. 90,000
Wages Rs. 80000
Other exp. Rs 10000

Rs. 2,00,000 was received from the contractor, being 80% of the work certified. Work done but not certified was Rs. 5000. Determine the profit to be credited to profit & loss a/c & profit kept as reserve in all the three alternatives are given below.

(i) Contract price is Rs. 3,00,000
(ii) " " Rs. 7,50000
(iii) " " Rs 12,00,000

Solution:

Contract A/c for the year 2009

To Material	90,000	By Working Progress:	
To Wages	80,000	Work certified (a)	2,50,000
To other expenses	10,000	Work uncertified	5,000
To Notional profit	75,000		
	2,55,000		2,55,000

(a) Cash Received = Rs. 2,00,000. This is 80% of Work certified.

∴ Work certified = $2,00,000 \times \frac{100}{80}$

= 2,50,000.

Profit credited to profit & Loss a/c.

(i) When contract price is Rs. 3,00,000

$\frac{\text{Work certified}}{\text{Contract price}} \times 100 = \frac{250000}{300000} \times 100 = 83.33\%$.

Work certified is more than 50% of the contract price.

Profit credited to P&L a/c.

= Notional pf $\times \frac{2}{3} \times \frac{\text{Cash Received}}{\text{Work certified}}$

$= 75000 \times \frac{2}{3} \times \frac{80}{100}$ = Rs. 40,000

Profit kept in reserve = Rs 75000 − Rs 40000 = Rs. 30000.

(ii) When contract price is Rs. 5,00,000

$\frac{\text{Work certified}}{\text{Contract price}} \times 100 = \frac{250000}{500000} \times 100 = 33.33\%$.

∴ Work certified is less than 50% but more than 25% of the contract price.

Profit credited to P&L a/c.

= Notional pf $\times \frac{1}{3} \times \frac{\text{Cash Received}}{\text{Work certified}}$

$= 75000 \times \frac{1}{3} \times \frac{80}{100}$ = Rs. 20000

Profit kept in reserve = Rs 75000 − Rs 20000 = Rs 55000.

(iii) Where contract price is Rs. 12,06,000

$\frac{\text{Work certified}}{\text{Contract price}} \times 100 = \frac{250000}{1200000} \times 100 = 20.83\%$

Work certified is less than 25% of the Contract Price

∴ No profit is transferred to P&L A/c

The entire notional profit is kept in reserve.

(P3) The following particulars relate to a certain contract carried out by Lavanya Builders during the year ended 30th June 2009.

	Rs.		Rs.
Work certified	1,43,000	Establishment charges	3250
Materials issued	64,500	Direct expenses	2,600
Labour cost	54,800	Wages accrued due	1,800
Plant installed	11,300	Materials closing balance	1,400
Value of plant (closing)	8,200	Materials returned to site	400
Uncertified work	3,400		
Cash received	1,30,000		
Contract price	2,00,000		

Prepare Contract A/c & transfer to the P&L A/c the portion of the profit which you considered reasonable.

Solution:

Contract A/c.

To Materials issued	64,500	By Work in progress	
To Labour cost 54800		Work certified	1,43,000
(+) Outstanding 1800	56,000	Work uncertified	3,400
To Establishment charges	3250	By Materials returned	400
To Direct expenses	2,600	By Mtl at the end	1,400
To plant	11,300	By plant at the end	8,200
To Notional pt c/d	18,150		
	1,56,400		1,56,400

To profit & Loss a/c	11,000	By Notional profit b/d	18,150
To Work-in-Progress (Reserve)	7,150		
	18150		18,150

Workings:

Work certified is more than half of the contract price of Rs. 2,00,000.

∴, transfer to profit & Loss a/c.

$$= \text{Notional profit} \times \frac{2}{3} \times \frac{\text{Cash received}}{\text{Work certified}}$$

$$= 18150 \times \frac{2}{3} \times \frac{1,30,000}{1,43,000} = \text{Rs. } 11,000$$

(P4) The following was the expenditure on a contract for Rs. 6,60,000. Work commenced in Jan. 2009.

	Rs.		Rs.
Materials	1,20,000	Plant	20,000
Wages	1,64,400	Business expenses	8,600

Cash received on a/c was Rs. 2,40,000 being 80% of work certified.

Value of materials on hand at 31.12.2009 was Rs 10,000

Prepare the contract a/c for 2009 showing the profit to be credited to profit & loss a/c.

Plant is depreciated at 10%.

Solution:

Workings: (1) Cash received = 80% of work certified.

If cash received is 80, work certified = 100

If cash received is 2,40,000, work certified = ?

$$= 240000 \times \frac{100}{80} = \text{Rs. } 3,00,000$$

(2) Work certified is one-half of the contract price of Rs. 6,00,000. ∴, Profit is credited to profit & loss a/c.

$= \text{Notional profit} \times \frac{2}{3} \times \frac{\text{Cash received}}{\text{Work certified}}$

$= 15,000 \times \frac{2}{3} \times \frac{80}{100} = \text{Rs. } 8,000$

Contract A/c

To Materials	1,20,000	By Work in Progress:	
To Wages	1,64,000	(1) Work certified	3,00,000
To Plant	20,000	By plant at the end	
To Repairs expenses	8,600	(20000 - 10% Depn)	18000
To Notional Profit c/d	15,000	By Materials at the end	10,000
	3,28,000		3,28,000
To Profit & Loss a/c (2)	8,000	By Notional profit b/d	15,000
To Work in Progress c/d	7,000		
	15,000		15,000

(P5) The following details relating to Contract No. 444 are available from the books of Mr. Jayaraman, a contractor. Date of Commencement of the contract is 1st Janu

Materials	40,000	Materials on hand (31.12.)	20,00
Wages	50,000	Plant at end	43,00
Other expenses	15,000	Cash received from contractor	3,00,00
Plant at cost	50,000		
Work certified	1,20,000	Materials returned to store	2,00
Work uncertified	60,000		

The Contract Price is Rs. 3,60,000.

Prepare Contract A/c & Work-in-Progress A/c Show how Work-in-Progress will appear in the B/S of the contractor.

Solun:

Contract A/c No. 111

	Rs.		Rs.
To Material	40,000	By Work in Progress:	
To Wages	50,000	Work certified	1,20,000
To other expenses	15,000	Work uncertified	60,000
To plant	50,000	By Materials returned	2,000
To Notional profit c/d	90,000	By Materials on hand	20,000
		By Plant at the end	43,000
	2,45,000		2,45,000
To profit & Loss a/c	25,000	By Notional profit b/d	90,000
To Work-in-Progress (Reserve)	65,000		
	90,000		90,000

Work-in-Progress A/c

To contract a/c:		By contract a/c (Reserve)	65000
Work certified	1,20,000		
Work uncertified	60,000	By balance c/d.	1,15,000
	1,80,000		1,80,000

Balance Sheet as on 31st Dec.

Liabilities		Assets	
		Work-in-Progress:	
		Work certified	1,20,000
		Work uncertified	60,000
			1,80,000
		Less: Reserve	65,000
			115000
		Less: Cash received	100000
			15000

Workings: Contract price is Rs. 360000. Work certified (1,20,000) is more than one-fourth but less than one-half of Contract price, transfer to profit & loss a/c.

$$= \text{Notional profit} \times \frac{1}{3} \times \frac{\text{cash received}}{\text{Work certified}}$$

$$= \text{Rs. } 90000 \times \frac{1}{3} \times \frac{1,00,000}{1,20,000} = \text{Rs. } 25000$$

PROCESS COSTING:

Process costing is a method of costing used to find out the cost of a product at each stage or process of production. Eg: Chemical works, soap making, oil refining, textile, paper, food products, iron & steel, cement etc.

(P1) From the following data, calculate units of normal loss in each process & prepare normal loss a/c.

	Process I Units	Process II Units	Process III Units
Input introduced	1000	—	—
Output transferred to next process	900	720	540
Value of Scrap p.u.	Rs. 1	Rs. 2	Rs. 3

Solution:

Normal Loss in Units

	Process I		Process II		Process III
Input	1000		900		720
(-) Normal loss	(10%) 100		(20%) 180		(25%) 180
Output	900		720		540

Normal Loss A/c.

	Units	Rs.		Units	Rs.
To Process I a/c	100	100	By cash	100	100
To process II a/c	180	360	By cash	180	360
To Process III a/c (Units × Scrap value)	180	540	By cash	180	540
	460	1000		460	1000

(12) In process I, 600 units were introduced at Rs. 20 p.u. The normal process loss is 20% & the input. The scrap is sold at Rs. 3 per unit. The labour & o/h expenses incurred in the process amounted to Rs. 1320. 500 units were completed & transferred to finished stock a/c. You are required to show the process a/c & abnormal gain a/c.

Solution:

Workings: Abnormal gain:

Input	600
Less: Normal loss (20% x 600)	120
Normal output	480
Actual output	500
Abnormal gain	20

Value of abnormal loss:

$$= \frac{\text{Normal cost of Normal output}}{\text{Normal output}} \times \text{Units of abnormal gain.}$$

Normal cost of Normal output = Total cost − Scrap value

= (Rs. 12000 + 1320) − Rs. 360

= Rs. 12,960

Value of abnormal loss = $\frac{12960}{480} \times 20$ = Rs. 540

Process I A/c

	Units	Rs.		Units	Rs.
To Materials	600	12,000	By Normal loss (2% of 600 sold @ Rs. 3 p.u.)	120	360
To labour & O/H exp		1320			
To Abnormal gain	20	540	By Finished Stock a/c	500	13500
	620	13860		620	13860

Abnormal Gain A/c

To Normal loss (Rs 3 p.u. x 20)	20	60	By Process I	20	540
Short fall in Normal loss c/d					
To Costing p/t & loss a/c		480			
	20	540		20	540

(P3) A product passes through three distinct processes to completion. During March, 500 units were produced. From the following information, prepare process a/cs showing the total cost as well as cost per unit.

	Process I Rs	Process II Rs	Process III Rs.
Materials	10,000	7,000	3000
Labour	2,500	2,000	2500
Direct expenses: Fuel	500	1,000	500
Carriage	1,500	500	1000
Works O/H.	2,000	2500	2000

Indirect expenses Rs. 14,000 should be apportioned on the basis of wages.

Solution:

Workings:

Apportionment of Indirect expenses:

Indirect expenses Rs. 14,000. It is to be apportionment on the basis of Wages.

Ratio of Wages = 2500 : 2000 : 2500

= 5 : 4 : 5

Indirect expenses ⇒ Process I = Rs. 14,000 × 5/14 = Rs. 5,000

Process II = Rs. 14000 × 4/14 = Rs. 4,000

Process III = Rs. 14,000 × 5/14 = Rs. 5,000

Process I A/c Production 500 units

	Amount Rs.	Per unit Rs.		Amt Rs.	Per unit Rs.
To Materials	10,000	20.00	By Transfer		
To Labour	2,500	5.00	to Process II a/c	21,500	43.00
To D. Expenses:					
Fuel	500	1.00			
Carriage	1,500	3.00			
To Works O/H.	2,000	4.00			
To Indirect exp.	5,000	10.00			
	21,500	43.00		21,500	43.00

Process II A/c

To Transfer from			By Transfer		
Process I a/c	21,500	43.00	to Process III	38500	77.00
To Materials	7,500	14.00			
To Labour	2,000	4.00			
To D. Exp:					
Fuel	1,000	2.00			
Carriage	500	1.00			
To Works O/H.	2,500	5.00			

To Indirect expenses	4000	8.00		38500	77.00
	38500	77.00			

Process III A/c.

To Transfer from Process II	38500	77.00	By Finished Stock a/c.	52500	105.00
To Material	3000	6.00			
To Labour	2500	5.00			
To Direct exp.					
Fuel	500	1.00			
Carriage	1000	2.00			
To Works O/H	2000	4.00			
To Indirect exp.	5000	1.00			
	52500	105.00		52500	105.00

(P4) A product passes through 2 distinct processes A & B and then to finished stock. From the following information prepare Process a/c.

	Process A	Process B
Materials Consumed (Rs)	12,000	6,000
Direct labour (Rs)	14,000	8,000
Manufacturing expenses (Rs)	4,000	4,000
Input in Process A (unit)	10,000	—
Input in Process A (value) (Rs.)	10,000	—
Output in units	9,400	8,300
Normal loss	5%	10%
Value of normal loss (per 100 units)	Rs. 8	Rs. 10

Solution:

Workings: ① Abnormal gain (Process A)

	Units
Input	10,000
Less: Normal loss 5%	500
Normal output	9,500

Normal output	9,500
Less: Actual output	9,400
Abnormal loss	100

Value of abnormal loss = $\frac{\text{Normal cost of normal output}}{\text{Normal output}} \times$ Units of abnormal loss.

Normal cost of Normal output = Total cost − Scrap value
= Rs. 40,000 − 40 = Rs. 39,960

Value of abnormal loss = $\frac{39960}{9500} \times 100$ = Rs. 421

Process A A/c

	Units	Rs.		Units	Rs.
To Materials (Input)	10,000	10,000	By Normal loss 5% of 10,000	500	40
To Material Consumed		12,000	By Abnormal loss	100	421
To D. labour		14,000	By Transfer to Process B/c	9400	39,539
To Mfg. exp.		4,000			
	10,000	40,000		10000	40,000

Working : Process B − Abnormal gain.

Input	9,400
Less: Normal loss	940
Normal output	8,460
Less: Actual output	8,300
Abnormal loss	160

Value of abnormal loss = $\frac{\text{Normal cost of normal output}}{\text{Normal output}} \times$ Units of abnormal loss.

Normal cost of normal output = Total cost − Scrap value

= Rs. 57,539 − 94 = Rs. 57,445

Value of abnormal loss = $\frac{57445}{8460} \times 160$ = Rs. 1086.

Process B a/c

To Process A	9400	39539	By Normal loss 10%	940	94
To Material Consumed		6000	By Abnormal loss	160	1086
To D. labour		8000	By Finished Stock a/c	8300	56359
To Mfg. exp		4000			
	9400	57539		9400	57539

(P5) Product A passes through 3 distinct processes. The product is transferred to finished stock after the third process. Prepare the process a/cs from the information given below.

	Process I	II	III
Direct Materials	4000	600	550
Direct labour	1500	1600	900
Direct expenses	650	400	—

Total production O/Hs during the period were Rs. 6,000. It is to be apportioned to different processes on the basis of 150% of direct labour. There was no opening or closing Stock. Production during the period was 200 units.

Solution:

Workings: (1) Production O/H is 150% of direct labour:

Production O/Hs: Process I = 1500 × 150/100 = Rs. 2,250
" II = 1600 × 150/100 = Rs. 2,400
" III = 900 × 150/100 = Rs. 1,350

Process I A/c

	Amt Rs.	P.U. Rs		Production 200 units Amt. Rs.	P.U. Rs
To D. Material	4000	20.00	By Transfer to Process II A/c	8400	42.00
To D. labour	1500	7.50			
To D. Expenses	650	3.25			
To Production o/H	2250	11.25			
	8400	42.00		8400	42.00

Process II A/c

To Transfer from Process I	8400	42.00	By Transfer to Process III A/c	13400	67.00
To D. Material	600	3.00			
To D. labour	1600	8.00			
To D. Expenses	400	2.00			
To Pdtn o/H	2400	12.00			
	13400	67.00		13400	67.00

Process III A/c

To Transfer from Process II	13400	64.00	By Finished Stock A/c	16200	81.
To D. Material	550	2.75			
To D. labour	900	4.50			
To Pdtn o/H	1350	6.75			
	16200	81.00		16200	81.