Overhead costing

Steps

1) Collection of production overhead cost
2) Allocation of production overhead cost
3) Apportionment
4) Re-apportionment
5) Calculate overhead absorption rate for each department
6) Calculate overhead cost per unit
7) Calculate production cost per unit
8) Calculate total cost per unit

OAR = Total budgeted Overhead of the relevant production department / Total Budgeted basis

Absorbed Overhead = OAR X Actual Hours

(Budgeted will be taken if actual is not given)

Under or (over) absorption = Actual overhead – Absorbed overhead

Different Overhead absorption rates

OAR = Total budgeted Overhead of the relevant production department / Total Direct material cost x 100
(as a % of DM cost)

OAR = Total budgeted Overhead of the relevant production department / Total Direct Labour cost x 100
(as a % of DL cost)

OAR = Total budgeted Overhead of the relevant production department / Total Prime cost x 100
(as a % of Prime cost)

Exercise 01
Sachini PLC produces two products called X and Y. The company operates two production departments as P1 and P2 and one service department as S1. The estimated annual overhead costs are as follows:

	P1	**P2**	**S1**
Indirect material	40 000	30 000	8 000
Indirect labour	36 000	24 000	12 000

Un distributed overhead cost	
Factory rent	480 000
Telephone	210 000
Building insurance	180 000
Employee insurance	240 000
Electricity	360 000
Machinery depreciation	300 000
Office rent	100 000

1. Other information

	P1	P2	S1
Machinery market value	1 400 000	1 000 000	600 000
Machinery cost	1 600 000	800 000	600 000
Floor area (square meters)	200 000	100 000	100 000
Kilo watt used	1 800	1 200	600
Number of employees	60	40	20
Telephone call time (minutes)	400	200	100
Estimated machine hours	100 000	40 000	-
Estimated direct labour hours	30 000	38 000	-

2. Overhead cost of the service department has to be apportioned between the two production departments in the ratio of 6:9
3. Rs. 60 000 from the building insurance is relevant for the office buildings
4. The overhead cost of the P1 and P2 production departments are absorbed on the basis of machine hours and direct labour hours respectively.
5. The actual machine hours and direct labour hours used for product x and y are as follows:

	Product x	Product Y
Machine hours	10	5
Labour hours	6	4

6. Direct cost relevant to the product X and product Y are as follows:-

	Product x	Product Y
Direct material	430	325
Direct labour	240	140
Direct other	100	-

Required

i. Prepare the overhead analysis sheet by showing the basis used.

ii. Re-apportionment of overhead costs of the service department among production departments.

iii. Overhead absorption rates for production departments

iv. Production cost per unit for product X and product Y

v. If the company sell goods by adding 20% profit to the **production cost** compute selling price of product X and product Y

Exercise 02

Visithuru (Pvt) Limited is a Plant Pot Manufacturing Company by using various types of Raw Materials. Following information relevant for special variety of Plant Pots Manufactured by them using clay. This company has two production departments namely Assembly and Finishing and a Service Department Store.

Annual Demand	96 000 Kg of Clay
Cost of placing an order	Rs. 12 000
Holding cost of a unit per year	Rs. 64
Minimum Consumption	400 Kg
Maximum Consumption	600 kg.
Minimum Lead Time	4 days
Average Lead Time	8 days

Following information relevant for raw material used by the business during the month of January 2019 at the production level of 1 000 Plant pots.

Direct material	Rs.	280 000
Other direct cost	Rs.	70 000
Indirect materials	Rs.	180 000

Information in relevant to employees of the business for the month of January 2019 is as follows:-

Name	Employee Category	Basic Salary	Incentives
Amal	Production Worker	80 000	5 600
Kamal	Production Worker	30 000	4 600
Nimal	Production Supervisor	75 000	
Bimal	Administrative Assistant	25 000	

a) Nimal and Bimal are paid travelling allowance of 11,500 and 20,500
b) Each worker contributes for employee welfare fund monthly amounting to Rs. 4000
c) Salary advance taken by Bimal is Rs. 5 000
d) Contribution to EPF is 10% by employee and 15% by employer and contribution to ETF is 3% by employer on basic salary

Required:

1) Economic order quantity of raw materials (Clay)
2) Re-order Level
3) Maximum stock level
4) Pay sheet of the business for the month of January 2019
5) Total employee related expense for the month of January 2019
6) Prime cost of a plant pot showing each cost item separately

Production overhead incurred by the above business for the month of January 2019 is as follows:

Building Rent	Rs.	400 000
Employee Welfare Expenses	Rs.	200 000
Machinery depreciation	Rs.	800 000
Electricity	Rs.	360 000

Additional Information

i)

Department	Assembly	Finishing	Store
Floor Space (Square meters)	5 000	3 000	2 000
No of Employees	60	30	10
Kilowatt hours	100	60	20
Cost of Machinery	1 500 000	2 500 000	
Estimated Machine hours	10 000	2 000	-
Estimated Direct Labour Hours	2 000	5 000	-

ii)Indirect materials and indirect labour should be distributed among Assembly and finishing departments as follows

Department	Assembly	Finishing
Indirect Material	5	4
Indirect Labour	60%	40%

iii) Overheads of store should be distributed among Assembly and Finishing departments in the ratio of 5:2
iv) Overheads of Assembly Department and Finishing Department are absorbed by using Machine hours and direct labour hours respectively.

v) Estimated time to produce a plant pot is as follows:
30 minutes from Assembly Department
15 Minutes from Finishing Department

vi) Selling price of a plant pot is determined by adding 20% on total cost

Required:

1. The completed overhead analysis sheet by mentioning apportionment basis (including re-apportionment)
2. Overhead absorption rates
3. Manufacturing cost of a plant pot by showing absorption of overheads
4. Selling price of a plant pot

Exercise 03

Amiru PLC produces two types of milk Bottles as "chocolate" and "vanilla". The factory has two production departments (Processing and Bottling) and a store. The related costs are as follows: The budgeted information at the activity level of 50 000 bottles for a one year period are as follows:

SR. No	Item	Total (Rs. '000)	Processing (Rs. '000)	Bottling (Rs. '000)	Store (Rs. '000)
1	**Budgeted overhead cost for the year**				
	Indirect material cost		152	61	27
	Indirect labour cost		130	90	10
	Electricity	120			
	Building maintenances	100			
	Store rent	40			
	Building Insurance	300			
	Machinery depreciation	50			
	Machinery insurance	200			
	Employees Insurance	130			
2	**Relevant other Information**				
	Machinery cost (Rs.)	1 000 000	400 000	600 000	
	Building cost (Rs.)	1 500 000	700 000	500 000	300 000
	Kilo watt hours	600	200	350	50
	Floor space (square meters)	20 000	10 000	6 000	4 000
	No of employees	40	24	12	4
	No of stores requisitions	18	10	08	-
	Budgeted machine hours		79000	38000	
	Budgeted Labour hours		18000	31000	

Additional information

i. The Processing Division uses machine hours and Bottling Division uses labour hours to absorb overheads.

ii. The following information is related to a bottle of chocolate drink.

Description		**Per one bottle**
Actual time spent	Processing Division	30 minutes
	Bottling Division	15 minutes
Direct Costs	Raw material	Rs. 10.50
	Labour	Rs. 3.50
Non-production variable overheads		Rs. 1.00

iii. Non-production fixed overheads is Rs. 100 000

iv. Profit margin is 10% on the selling price of each product.

Required:

(1) The overhead Analysis Sheet showing clearly the bases of apportionment(including re-apportionment of Service Division overheads)
(2) Overhead absorption rates for two divisions – Processing and Bottling
(3) Cost of production per bottle of chocolate Drink
(4) Budgeted selling price per bottle of chocolate Drink