A1. PaintCo

A paint manufacturer produces specialist paints to meet customers' specific requirements. Each customer order is manufactured as a separate job with production overheads allocated to it. Direct labour costs are high as every job requires mixing by hand. The management accountant has provided details of the budget and actual data for the company for the whole year as well as details of a particular customer order.

	2022 Budget	2022 Actuals	Customer order
Production overheads £	250,000	276,000	
Direct labour hours	25,000	24,000	80
Machine hours	5,000	4,200	78

1. **Why should direct labour hours be used to apportion the overhead?**
   A It is the easiest method.
   B It is the most commonly used method.
   C It is a labour intensive operation.
   D There are more machine hours than labour hours.

2. **What direct labour rate is to be used to apportion the overheads?**
   A £0.10
   B £50.00
   C £11.50
   D £10.00

3. **How much production overhead should be charged to the customer order?**
   A £8
   B £4,000
   C £920
   D £800

4. **How much production overhead has been recovered in the whole year?**
   A £240,000
   B £24,000
   C £250,000
   D £276,000

5. **How much is the over or under recovery for the year?**

A	£36,000	Over recovery
B	£10,000	Under recovery
C	£36,000	Under recovery
D	£10,000	Over recovery

A2. Travelbags

A manufacturer produces two types of luggage: suitcases and handbags. Both products are manufactured in two departments—machining and assembly. There is a canteen to provide meals for the workforce. The following information has been provided to calculate the overhead costs of both products.

	Suitcase	**Handbag**
Machine hours per item (machining department)	0.5	0.2
Direct labour hours per item (assembly department)	0.2	0.3
Production – number of items per annum	25,000	20,000

Overhead costs are as follows:

	Machining	**Assembly**	**Canteen**
Total estimated annual overhead cost - £	84,000	36,000	30,000
Number of employees	8	4	2

1. **Reapportion the canteen costs to the machine and assembly departments to the nearest £.**

	Machining	Assembly
A	£17,143	£8,571
B	£10,000	£20,000
C	£20,000	£10,000
D	£17,143	£12,857

2. Calculate a machine hour rate for the machining department with overheads of £104,000 (to two decimal places)

A	£26.00
B	£2.31
C	£8.32
D	£6.30

3. Calculate a machine hour rate for the machining department with overheads of £104,000 (to two decimal places)

A	£9.20
B	£4.18
C	£1.02
D	£7.67

4. Calculate the machining overhead costs for a suitcase and a handbag (to two decimal places)

	Suitcase	Handbag
A	£3.15	£1.26
B	£1.26	£1.89
C	£2.09	£0.84
D	£6.30	£6.30

5. Calculate the assembly overhead cost of a suitcase and handbag (to two decimal places)

	Suitcase	Handbag
A	£0.84	£1.25
B	£2.09	£0.84
C	£1.26	£1.89
D	£4.18	£4.18

A3. Confectionary

A confectionary manufacturer has two production departments—sweets and chocolates—which are supported by a maintenance department. The following supervisor costs have been budgeted for the coming year: sweet department (£75,000), chocolate department (£50,000) and maintenance department (£75,000). They expect to also incur electricity costs of £160,000, rent of £280,000, and depreciation of £180,000.

The management accountant has provided additional information which can be used to allocate overhead costs to the different departments.

	Sweets	Chocolate	Maintenance
Floor area in square metres	650	350	400
Number of employees	30	50	10
Power in Kw hours	60,000	30,000	10,000
Maintenance hours	400	200	
Number of products	100,000	75,000	
Machine hours	55,200	99,000	
Net book value -£	50,000	40,000	

1. **Apportion power costs to the sweets, chocolate, and maintenance departments**

	Sweets	Chocolate	Maintenance
A	£96,000	£48,000	£16,000
B	£74,286	£40,000	£45,714
C	£53,333	£88,889	£17,778
D	£88,889	£71,111	-

2. **Apportion rent costs to the sweets, chocolate, and maintenance departments**

	Sweets	Chocolate	Maintenance
A	£108,000	£54,000	£18,000
B	£83,571	£45,000	£51,429
C	£102,857	-	£20,000
D	£100,000	£80,000	-

3. Apportion depreciation costs to the sweets, chocolate, and maintenance departments

	Sweets	Chocolate	Maintenance
A	£168,000	£84,000	£28,000
B	£93,333	£155,536	£31,111
C	£130,000	£70,000	£80,000
D	£160,000	£120,000	-

4. Apportion maintenance costs to the sweets and chocolate departments

	Sweets	Chocolate
A	£50,000	£25,000
B	£114,000	£57,000
C	£64,000	£32,000
D	£97,714	£48,857

5. Calculate the departmental rate for the sweets and chocolate departments based on machine hours

	Sweets	Chocolate
A	£7.26	£2.51
B	£7.97	£2.58
C	£9.33	£3.08
D	£5.15	34.07

A4. Earthenware

A crockery manufacturer, Earthenware, produces cups and bowls in two different manufacturing departments. In order to price the products, the management accountant needs to allocate overhead costs to each department. She has estimated that supervisory costs of £640,000 will be incurred by the cup department and £840,000 by the bowl department. However, electricity costs of £270,000, rent of £120,000, and depreciation of £450,000 need to be apportioned. She has been given the following information:

	Cups	**Bowls**
Floor area – square metres	3,500	2,500
Number of employees per department	30	50
Kilowatts hours	60,000	30,000
Net book value of equipment in £s	50,000	40,000
Machine hours per year	2,500	5,000

Required:

1. Use the factory information above to allocate and apportion the estimated costs and calculate the total estimated cost for each of Earthenware's departments.
2. Calculate a machine hour rate for each department.

A5. Lumin

Lumin is a company which manufactures two types of light bulb, standard and bright for cars. The bulbs are produced by two departments: glass manufacture and assembly. The bulbs are first made on a high-speed automated production line and then are assembled by hand. The company also operates a canteen as a separate department. The company estimates that it will manufacture 4,500 standard and 4,000 bright lightbulbs in the coming year. Direct labour costs are £10 per hour.

The following information has been estimated for each light bulb:

Per light bulb	**Standard light bulb**	**Bright light bulb**
Materials £	15	20
Labour – hours in machine department	2	3
Labour – hours in assembly department	1	1
Machine hours	2	3

Overhead information is as follows:

	Glass manufacture	**Assembly**	**Canteen**
Total cost - £	50,000	64,000	25,000
Number of employees	5	10	2

Required:

1. Using the factory information above allocate, apportion, and re-apportion the estimated costs to calculate the total estimated cost for each of Lumin's departments.
2. Calculate an appropriate rate for each department.
3. Calculate the cost of production for a standard and bright light bulb.

A6. Posterprint

Posterprint Ltd has the following budgeted data for the coming year:

Direct materials	£40,000
Direct labour	£35,000
Production overheads	£250,000
Machine hours	10,000
Labour hours	125,000

A client has asked for the company to produce a batch of flower posters and the management accountant has estimated that the following costs will be incurred for this job:

Direct materials £	2,400
Direct labour £	1,800
Machine hours	40
Labour hours	250

At the end of the year, the actual results for the company were:

Direct materials £	45,000
Direct labour £	29,000
Production overheads £	275,000
Machine hours	12,500
Labour hours	115,000

Required:

1. From the information above, explain why using direct labour hours is the preferred method of absorbing the production overhead.
2. Using a direct labour hour rate, calculate the cost of the flower poster job.
3. Determine the over or under recovery of the production overheads for the year.

A7. Mount Ltd

Mount Ltd manufactures two types of picture frames. Both are produced in a similar way, but customers can choose between standard size fames or have frames made to their own specifications.

The information is as follows:

	Machine hours Per 100 Frames	Annual output	Number of purchase orders	Number of set-ups
Customised	4	10,000	60	30
Standard	1	100,000	120	60

The management accountant has estimated that machine related costs are £210,000, purchasing related costs are £270,000 and set-up costs are £360,000.

Required:

1. Calculate the production overhead to be included in the cost of a customized and standard frame using a traditional absorption rate.
2. Calculate the production overhead to be included in the cost of a customized and standard frame using an activity-based costing system.
3. Explain why the cost of each frame is different under the two methods of allocating overheads.

A8.

What are the benefits of using an activity-based costing system in preference to a traditional absorption costing system to allocate production overheads?