**Question 37**

**Part A**

Brothers plc is a chemical manufacturer. In Process 2, output from Process 1 is mixed with additional material in the ratio 2:1 in order to complete the finished product.

Details of production in Process 2 during May were:

Additional Materials 200 litres costing £4 per litre

Transfer from Process 1 £12 per litre

Labour 100 hours at £10 per hour

Variable Overheads £500

Fixed Overheads 10% of prime cost

Normal Losses 5% of total input

Closing Work-in-progress 50 litres with a value of £420

Finished Output 500 litres

Any losses can be sold for £2 per litre.

1. **Prepare** the Process 2 Account for May. **10**

(ii) **Prepare** the Abnormal Loss Account for May. **3**

(iii) **Calculate** the price per litre Brothersplc should sell the output of Process 2 for,

if it wishes to earn a profit margin of 30%. **2**

**Part B**

Buchanan Ltd produces and sells a range of 3 products to which the following details relate.

**Product A B C**

Estimated Output/sales (units) 3,000 2,000 4,000

Total Direct Material Cost £9,000 £2,800 £5,200

Total Variable Overheads (80% of Labour Cost) £12,000 £3,200 £4,800

Selling Price per unit £15 £7.50 £6

Fixed Costs £10,000 £4,000 £6,000

Labour Hours per unit 3 5 1

1. **Calculate:**
2. Total Labour Cost for each product for the estimated output
3. Total Variable Cost per unit for each product
4. Contribution per unit for each product
5. Total Profit or Loss which would be earned from the estimates sales **13**

Due to staff shortages, labour hours for the following year will be limited to 14,000.

1. **Calculate** the number of units of each product to be made, to maximise profit. **6**

**Part C**

An overhead analysis statement shows the allocation and apportionment of overheads to each cost centre. The overheads for each cost centre are totalled and the overhead absorption rate for each cost centre is calculated.

**Explain** the meanings of each of the terms underlined. **6**

**Total marks (40)**

**Question 37 — solutions**

**Part A**

**(i) Process 2 Account**

**DR CR Balance**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Qty** | **CPU** | **£** | **Qty** | **CPU** | **£** | **Qty** | **CPU** | **£** |
| **Process 1** | 400 **(1)** | 12 | 4,800 **(1)** |  |  |  | 400 |  | 4,800 |
| New Material | 200 | 4 | 800 **(1)** |  |  |  | 600 |  | 5,600 |
| Labour |  |  | 1,000 **(1)** |  |  |  |  |  | 6,600 |
| Variable Overhead |  |  | 500 **(1)** |  |  |  |  |  | 7,100 |
| Fixed Overhead |  |  | 660 **(1)** |  |  |  |  |  | 7,760 |
| Normal Loss |  |  |  | 30 | 2 | 60 **(1)** | 570 |  | 7,700 |
| Work-in-progress |  |  |  | 50 |  | 420 **(1)** | 520 | 14 | 7,280 |
| Finished Goods |  |  |  | 500 | 14 (**2)** | 7,000 | 20 | 14 | 280 |
| Abnormal Loss |  |  |  | 20 | 14 | 280\* |  |  | - |

**10**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **(ii) Abnormal Loss Account** | | | | | | | | | |
|  | **DR** | | | **CR** | | | **Balance** | | |
|  | **Qty** | **CPU** | **£** | **Qty** | **CPU** | **£** | **Qty** | **CPU** | **£** |
| **Process 2** | 20 | 14 | 280\* **(1)** |  |  |  | 20 | 14 | 280 |
| **Cash** |  |  |  | 20 | 2 | 40 **(1)** |  |  | 240 |
| **Income Statement** |  |  |  |  |  | 240 **(1)** |  |  | 0 |

\* 1 mark for both values **3**

**(iii) Price per litre**

Cost per litre £14

Profit £6 **(2)**

Selling price £20

**2**

**Part B**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (i) |  | **A** | **B** | **C** | **Total** |  |
| **1** | Total Labour Cost | £12,000x100/80 | £3,200x100/80 | £4,800x100/80 |  |  |
|  |  | £15,000**(1)** | £4,000**(1)** | £6,000**(1)** |  |  |
|  |  |  |  |  |  |  |
| **2** | Direct Material Cost | £9,000 | £2,800 | £5,200 |  |  |
|  | Direct Labour Cost | £15,000 | £4,000 | £6,000 |  |  |
|  | Variable Overhead Cost | £12,000 | £3,200 | £4,800 |  |  |
|  | Total Variable Cost | £36,000 | £10,000 | £16,000 |  |  |
|  |  |  |  |  |  |  |
|  | Variable Cost per unit | £36,000/  3,000 | £10,000/  2,000 | £16,000/  4,000 |  |  |
|  |  | £12**(1)** | £5**(1)** | £4**(1)** |  |  |
|  |  |  |  |  |  |  |
| **3** | Selling Price per Unit | £15 | £7·50 | £6 |  |  |
|  | Contribution per Unit | £15 − £12 | £7·50 − £5 | £6 − £4 |  |  |
|  |  | £3**(1)** | £2·50**(1)** | £2**(1)** |  |  |
|  |  |  |  |  |  |  |
| **4** | Output/Sales (Units) | 3,000 | 2,000 | 4,000 |  |  |
|  |  | 3,000 x £3 | 2,000 x £2·50 | 4,000 x £2 |  |  |
|  | Total Contribution | £9,000**(1)** | £5,000**(1)** | £8,000**(1)** | £22,000 |  |
|  | Less Fixed Costs |  |  |  | £20,000 |  |
|  | Profit/(loss) ✓ |  |  |  | 2,000 | **(1)** |

**13**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (ii) |  | **A** | **B** | **C** |  | |
|  | Contribution per Labour Hour | £3/3 | £2.50/5 | £2/1 |  | |
|  |  | £1**(1)** | £0·50 **(1)** | £2 **(1)** |  | |
|  |  |  |  |  |  | |
|  | ORDER OF PRIORITY | 2 | 3 | 1 **(1)** |  | |
|  |  |  |  |  |  | |
|  | Maximum Hours: | 14,000 |  |  |  | |
|  |  |  |  |  |  | |
|  | C | 4,000 units | 4,000 hours  **(1)**  9,000 hours | | | |
|  | A | 3,000 units |
|  | B | 200 units | **(1)** 1,000 hours/5 hrs per unit | | |  |

**6**

**Part C**

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** | **Allocation** — takes place when the overhead cost can be identified with a particular department **(1)**. It is a cost which is unique to that particular department **(1)** and the department is charged with the actual overhead it has incurred **(1),** egindirect materials **(1)**. |  |  |
|  | **(up to a maximum of 2 marks)** |  |  |
|  | **Apportionment** — takes place when the overhead cost cannot be identified with a particular department **(1)**. Each department is charged with its share of the total overhead using an equitable basis **(1),** eg Rent according to floor area occupied by each department **(1)**. |  |  |
|  | **(up to a maximum of 2 marks)** |  |  |
|  | **Cost centre** — any part of a business where production takes place **(1)** and to which costs can be charged **(1)**, eg department, item of equipment, machine or person **(1)**.Cost centres are used to collect overheads for charging on to products which use the cost centre **(1)**. |  |  |
|  | **(up to a maximum of 2 marks)** |  | **6** |
|  |  |  |  |
|  | **Total marks (40)** | | |