**Question 34**

Nivens Ltd operates a system of separate absorption rates for each of the production cost centres in its factory.

The factory has three production cost centres — A, B and C, and two service cost centres —   
X and Y.

The following estimates have been made for Year 3:

|  |  |
| --- | --- |
| **Overheads** | **Total cost** |
|  |  |
| Rent | £144,000 |
| Canteen Costs | £90,000 |
| Power | £160,000 |
| Heat and Light | £36,000 |
| Machine Insurance | £9,000 |
| Indirect Materials | £41,032 |

The following details are also available:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **X** | **Y** |
| No of Employees | 120 | 75 | 60 | 30 | 15 |
| Kilowatt Hours (000s) | 20 | 48 | 12 | – | – |
| Area (000s sq metres) | 24 | 36 | 18 | 12 | 6 |
| Value of Machinery (£000s) | 30 | 90 | 60 | – | – |
| Indirect Materials | £7,720 | £7,517 | £13,910 | £8,730 | £3,155 |
| Machine Hours | 10,200 | 26,480 | 5,600 | – | – |
| Labour Hours | 38,300 | 20,000 | 10,440 | 5,100 | 2,600 |
| Direct Wages | £306,400 | £200,000 | £93,960 | – | – |
|  |  |  |  |  |  |

1. (i) Apportion the overheads for Year 3 to the five cost centres, using the most appropriate basis in each case.

(ii) Re-apportion the service cost centre overheads to the production cost centres, on the following bases: Department X followed by Department Y.

**Department basis**

X (including share to Department Y) — Number of Employees

Y — Machine Hours **15**

Nivens Ltd intends to recover overheads in Year 3 by using the labour hour rate   
method in cost centres A and C and by the machine hour rate in cost centre B.

(b) **Calculate** for each production cost centre the overhead absorption rate to be used  
 in Year 3. **3**

**Question 34 (continued)**

Nivens Ltd has been asked to give a quotation for a job to which the following details relate.

|  |  |  |  |
| --- | --- | --- | --- |
| Direct Material required |  | £192 |  |
| Direct Labour Hours: | A | 30 |  |
|  | B | 15 | (including 10 on machines) |
|  | C | 6 |  |

Nivens Ltd aim to earn a profit margin of 40% on selling price.

(c) Using the information above and the relevant information calculated in (b), prepare   
the quotation showing clearly the final selling price. **9**

**Total marks (27)**

**Question 34 — solution**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (a) | (i) & (ii) |  | **Basis of Apportionment** | **Total** | **A** | **B** | **C** | **X** | **Y** |  |
|  |  |  |  |  | **£** | **£** | **£** | **£** | **£** |  |
|  |  | Rent | Area | £144,000 | 36,000 | 54,000 | 27,000 | 18,000 | 9,000 | **(2)** |
|  |  | Canteen Costs | No of employees | £90,000 | 36,000 | 22,500 | 18,000 | 9,000 | 4,500 | **(2)** |
|  |  | Power | Kilowatt hours | £160,000 | 40,000 | 96,000 | 24,000 | - | - | **(2)** |
|  |  | Heat and Light | Area | £36,000 | 9,000 | 13,500 | 6,750 | 4,500 | 2,250 | **(2)** |
|  |  | Machine Insurance | Value of Machinery | £9,000 | 1,500 | 4,500 | 3,000 | - | - | **(2)** |
|  |  | Indirect Materials | Allocated | £41,032 | 7,720 | 7,517 | 13,910 | 8,730 | 3,155 | **(1)** |
|  |  |  |  |  | 130,220 | 198,017 | 92,660 | 40,230 | 18,905 |  |
|  |  | X | No of employees | 40,230 | 17,880 | 11,175 | 8,940 |  | 2,235 | **(2)** |
|  |  |  |  |  | 148,100 | 209,192 | 101,600 |  | 21,140 |  |
|  |  | Y | Machine hours | 21,140 | 5,100 | 13,240 | 2,800 |  |  | **(2)** |
|  |  |  |  |  | 153,200 | 222,432 | 104,400 |  |  |  |

**15**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| (b) | Absorption Rate (A) | = £153,200/38,300  = £4 (per labour hour) |  | **(1)** |
|  | Absorption Rate (B) | = £222,432/26,480  = £8·40 (per machine hour) | | **(1)** |
|  | Absorption Rate (C) | = £104,400/10,440  = £10 (per labour hour) |  | **(1)** |

**3**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| (c) | Quotation |  |  |  |  |
|  |  |  | £ | £ |  |
|  | Direct Material |  |  | 192\* |  |
|  | Direct Labour | A 30 x £8 | 240 **(1)** |  |  |
|  |  | B 15 x £10 | 150 **(1)** |  |  |
|  |  | C 6 x £9 | 54 **(1)** | 444 |  |
|  | Overheads | A30 x £4 | 120 **(1)** |  |  |
|  |  | B10 x £8.40 | 84 **(1)** |  |  |
|  |  | C6 x £10 | 60 **(1)** | 264 |  |
|  | Total Cost |  |  | 900 |  |
|  | Profit |  |  | 600 | **(2)** |
|  | Selling Price | ✓ |  | 1,500\* | **(1)** |

**9**

\* 1 mark for both plus label

**Total marks (27)**