Part I

Solutions

An introduction to cost terms and concepts

Solutions to Chapter 2 questions

Solution IM 2.1

(1) (a); (2) (d); (3) (e); (4) (f); (5) (i); (6) (b); (7) (h).

Solution IM 2.2

(i)	Direct materials	(ii)	Direct labour	(iii)	Direct expenses
	9		16		10
(iv)	Indirect production overhead	(v)	Research and development costs	(vi)	Selling and distribution costs
	1		20		7
	6				11
	8				12
	18				13
	19				17
(vii)	Administration costs	(viii)	Finance costs		
	2		5		
	3				
	4				
	14				
	15				

Solution IM 2.3

(a) Variable cost per running hour of Machine XR1

	(£)
(£27 500/1100 hours)=	25
Fixed cost „ „ „ „ „ „ „ „ „ „ (£20 000/1100 hours) =	18.182

Cost of brain scan on Machine XRI:	(£)
Variable machine cost (4 hours × £25)	100
X-ray plates	40
Total variable cost	140
Fixed machine cost (4 hours × £18.182)	72.73
Total cost of a scan	212.73
Total cost of a satisfactory scan (£212.73/0.9)	236.37

(b) It is assumed that fixed costs will remain unchanged and also that they are not relevant to the decision. The relevant costs are the incremental costs of an additional scan:

Machine XR1:	(£)
Variable cost per scan	140
Variable cost per satisfactory scan (£140/0.9)	155.56
Machine XR50:	(£)

Variable machine cost per scan (£64 000/2000 hours × 1.8 hours)	57.60
X-ray plates	55.00
Variable cost per scan	112.60
Variable cost per satisfactory scan (£112.60/0.94)	119.79

The relevant costs per satisfactory scan are cheaper on Machine XR50 and therefore brain scans should be undertaken on this machine.

Solution IM 2.4

(a) *Standard cost sheet (per unit)*

	(£)	(£)
Direct materials 40 m^2 at £5.30 per m^2		212
Direct wages:		
Bonding dept 48 hours at £12.50 per hour	600	
Finishing dept 30 hours at £9.50 per hour	285	
		885
(i) Prime cost		1097
Variable overhead:[a]		
Bonding dept 48 hours at £0.75 per hour	36	
Finishing dept 30 hours at £0.50 per hour	15	
		51
(ii) Variable production cost		1148
Fixed production overhead[b]		40
(iii) Total production cost		1188
Selling and distribution cost[c]	20	
Administration cost[c]	10	
		30
(iv) Total cost		1218

Notes

[a] Variable overhead rates: $\text{Bonding} = \dfrac{£375\,000}{500\,000 \text{ hours}} = £0.75$

$$\text{Finishing} = \frac{£150\,000}{300\,000 \text{ hours}} = £0.50$$

[b] Fixed production overhead rate per unit of output $= \dfrac{£392\,000}{9800 \text{ units}} = £40$

The fixed production overhead rate per unit of output has been calculated because there appears to be only one product produced. Alternatively, a fixed production hourly overhead rate can be calculated and charged to the product on the basis of the number of hours which the product spends in each department.

[c] Selling and production cost per unit of output $= \dfrac{£196\,000}{9800 \text{ units}} = £20$

$$\text{Administration cost per unit of output} = \frac{£98\,000}{9800 \text{ units}} = £10$$

(b) Selling price per unit $£1218 \times \dfrac{100}{85} = \underline{\underline{1433}}$