

Part I

Solutions



# An introduction to cost terms and concepts

## Solutions to Chapter 2 questions

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

### Solution IM 2.1

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

### Solution IM 2.2

(a) Variable cost per running hour of Machine XR1

### Solution IM 2.3

	(£)
Fixed cost " " " " " " " " " "	25
(£27 500/1100 hours)=	
(£20 000/1100 hours) =	18.182
<i>Cost of brain scan on Machine XRI:</i>	(£)
Variable machine cost (4 hours × £25)	100
X-ray plates	<u>40</u>
Total variable cost	140
Fixed machine cost (4 hours × £18.182)	<u>72.73</u>
Total cost of a scan	<u>212.73</u>
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:

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

Variable machine cost per scan (£64 000/2000 hours × 1.8 hours)	57.60
X-ray plates	<u>55.00</u>
Variable cost per scan	<u>112.60</u>
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) <i>Standard cost sheet (per unit)</i>		
Direct materials 40 m <sup>2</sup> at £5.30 per m <sup>2</sup>		212
Direct wages:		
Bonding dept 48 hours at £12.50 per hour	600	
Finishing dept 30 hours at £9.50 per hour	<u>285</u>	
		<u>885</u>
(i) Prime cost		1097
Variable overhead: <sup>a</sup>		
Bonding dept 48 hours at £0.75 per hour	36	
Finishing dept 30 hours at £0.50 per hour	<u>15</u>	
		<u>51</u>
(ii) Variable production cost		1148
Fixed production overhead <sup>b</sup>		<u>40</u>
(iii) Total production cost		1188
Selling and distribution cost <sup>c</sup>	20	
Administration cost <sup>c</sup>	<u>10</u>	
		<u>30</u>
(iv) Total cost		<u>1218</u>

*Notes*

<sup>a</sup> Variable overhead rates: Bonding =  $\frac{£375\ 000}{500\ 000\ \text{hours}} = £0.75$

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

<sup>b</sup> Fixed production overhead rate per unit of output =  $\frac{£392\ 000}{9800\ \text{units}} = £40$

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.

<sup>c</sup> Selling and production cost per unit of output =  $\frac{£196\ 000}{9800\ \text{units}} = £20$

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

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