Answers

Section A

1 D
2 C
3 C
4 B
5 A
6 B [(60 units at £5·00) + (10 units at £5·50)]
7 C [(50 units at £6·00) + (20 units at £5·50)]
8 C
9 D [(340 litres ÷ 0·85)
10 A [(250 units ÷ 2) × £3/unit]
11 B
12 B [(36 hours at £3·60) + (2 hours at £5·40)
13 C
14 A
15 C
16 D
17 C Material (300 – 250 litres): Conversion costs [(300 – 250 litres) × 0·5]
18 C [£210,000 + £65,000) ÷ (£256,000 ÷ £640,000)]
19 C [£210,000 + £52,000) ÷ (£256,000 ÷ 128,000 units)]
20 D (based on contribution per skilled labour hour)

Section B

1 **(a)** Profit statement (marginal costing):

	Month 1		*Month 2*	
	£	£	£	£
Sales		98,000		106,400
Variable cost of sales:				
Production*	45,150		49,020	
Administrationº	4,900	50,050	5,320	54,340
Contribution		47,950		52,060
Fixed overheads:				
Production	30,000		30,000	
Administration	13,000	43,000	13,000	43,000
Net profit		4,950		9,060

* sales units × £12·90 per unit
º sales revenue × 0·05

(b) Profit reconciliation (Month 2):

Absorption costing net profit	£7,810	
Add: fixed production overhead in opening stock	£3,750	[30,000 × (500 ÷ 4,000)]
Deduct: fixed production overhead in closing stock	(£2,500)	[30,000 × (300 ÷ 3,600)]
Marginal costing net profit	£9,060	

Using absorption costing, fixed production overheads are absorbed into stock. Any unsold stock at the end of a period results in the carry over of fixed production overheads to the period in which the stock is sold. Under marginal costing, fixed production overhead incurred is treated as a cost of the period.

Where stock increases over a period, absorption costing will show a higher profit as more fixed production overhead is absorbed into stock (see Month 1). In Month 2, there is a reduction in finished goods stock. As a result more fixed production overhead is charged to the period from opening stock than is held over to Month 3 in closing stock. Absorption costing profit is thus lower than marginal costing profit in Month 2.

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		Job X124	Job X125	Job X126
(a) **(i)**	Direct material cost	(7220+6978) = £14,198	(18994+160) = £19,154	(12221–3030) = £9,191
(ii)	Direct labour cost	[6076+(780×7)] = £11,536	(2364×7) =£16,548	(1510×7) = £10,570
(iii)	Production overhead cost	[10416+(780×12)] = £19,776	(2364×12) = £28,368	(1510×12) = £18,120
(b)	Total cost	[(14198+11536+19776)x1 .2] = £54,612		(19154+16548+28368)x1.2 = £76,884
	Profit/(loss)	(60,000–54,612) = £5,388		(79,000–76,884) = £2,116

3 **(a)**

Joint process costs:	£	
Direct material	24,000	
Direct labour	48,000	
Factory overhead	86,400	[(£24,000 + £48,000) × 1·2]
	158,400	
Scrap sales	(5,120)	[(3,200 litres × 0·1) × £16/litre]
	153,280	

(b)

Sales value of output:	£	
Chemical X	144,000	(1,440 litres at £100)
Chemical Y	69,120	(864 litres at £80)
Chemical Z	34,560	(576 litres at £60)
	247,680	

(c) Chemical X (share of joint process costs based on volume of output):

$$£153,280 \times \frac{1,440}{2,880} = £76,640$$

(d) Chemical Y (share of joint process costs based on sales value):

$$£153,280 \times \frac{£69,120}{£247,680} = £42,776 \text{ (to the nearest £)}$$

4 **(a)** Profit is a measure of the increase in the capital of a business over a period of time, resulting from the application of the matching concept i.e. matching an appropriate proportion of the costs incurred/committed by a business against the sales achieved. Net cash flow, on the other hand, is a measure of the difference in a period between the payments made by a business from its bank account and the receipts that have been paid in.

The net cash flow will differ from the profit in a period due to timing differences, for example between:
- receipts from credit customers and sales invoiced
- payment of creditors and costs matched against sales
- purchase/production of stock and costs matched against sales
- capital investment and the charging of fixed assets over useful life via depreciation

Long term funding of a business will also affect cash flow but not profit.

The rationale for discounting cash flows in the appraisal of capital investment project viability is:
- discounting reflects the time value of money i.e. the earlier that cash flows are received the greater their value due to their earning capacity
- cash flows drive earning capacity

(b) Investment appraisal:

Year	*Cash Flow (£000)*	*Discount Factor 12%*	*Present Value 12% (£000)*	*Discount Factor 20%*	*Present Value 20% (£000)*
0	(460)	1·000	(460)	1·000	(460)
1	50	0·893	44·7	0·833	41·7
2	140	0·797	111·6	0·694	97·2
3	180	0·712	128·2	0·579	104·2
4	250	0·636	159·0	0·482	120·5
5	160	0·567	90·7	0·402	64·3
6	(40)	0·507	(20·3)	0·335	(13·4)
			53·9		(45·5)

(i) NPV (i.e at 12%, the cost of capital) = £53,900

(ii)
$$\text{IRR} = 12\% + [8\% \times \frac{53{\cdot}9}{53{\cdot}9 - (45{\cdot}5)}]$$

$$= 12\% + [8\% \times \frac{53{\cdot}9}{99{\cdot}4}]$$

$$= 16\%$$

(iii) Discounted payback period (i.e using discounted cash flows at 12%, the cost of capital):

Cum cash flows (£000):
= (460) – 44·7 = (415·3) end Year 1
= (415·3) – 111·6 = (303·7) end Year 2
= (303·7) – 128·2 = (175·5) end Year 3
= (175·5) – 159·0 = (16·5) end Year 4 + (16·5 ÷ 90·7)

= 4·2 years (or 5 years if all cash flows are assumed to be year-end).

						Marks	
Section A							
2 marks per question						**40**	
Section B							
1	**(a)**	sales			1		
		variable production cost			3		
		variable administration cost			2		
		contribution			2		
		fixed production cost			1		
		fixed administration cost			1	10	
	(b)	stock differences – calculation and reconciliation			3		
		narrative: fixed overhead in stock (absorption)			1		
		fixed overhead in period cost (marginal)			1		
		stock change			2	7	
						17	
2	1 mark for each					**13**	
3	**(a)**	direct costs			0·5		
		overhead			1·5		
		scrap			2	4	
	(b)	Chemical X, Y & Z			1		
		total			1	2	
	(c)	share				3	
	(d)	share				3	
						12	
4	**(a)**	profit		up to	2		
		net cash flow			1		
		difference		up to	2		
		discounting rationale			1·5		
		cash flow rationale			1·5	6	max
	(b)	**(i)**	discounting at 12%		2		
			NPV		1	3	
		(ii)	discounting at 20%		2		
			IRR		4	6	
		(iii)	discounted payback			3	
						18	