Section C – Both questions are compulsory and MUST be attempted

Please write your answers to all parts of these questions on the lined pages within the Candidate Answer Booklet.

31 Jungle Co is a very successful multinational retail company. It has been selling a large range of household and electronic goods for some years. One year ago, it began using new suppliers from the country of Slabak, where labour is very cheap, for many of its household goods. In 20X4, Jungle Co also became a major provider of 'cloud computing' services, investing heavily in cloud technology. These services provide customers with a way of storing and accessing data and programs over the internet rather than on their computers' hard drives.

All Jungle Co customers have the option to sign up for the company's 'Gold' membership service, which provides next day delivery on all orders, in return for an annual service fee of $40. In September 20X5, Jungle Co formed its own logistics company and took over the delivery of all of its parcels, instead of using the services of international delivery companies.

Over the last year, there has been worldwide growth in the electronic goods market of 20%. Average growth rates and gross profit margins for cloud computing service providers have been 50% and 80% respectively in the last year. Jungle Co's prices have remained stable year on year for all sectors of its business, with price competitiveness being crucial to its continuing success as the leading global electronic retailer.

The following information is available for Jungle Co for the last two financial years:

	Notes	31 August 20X6 $'000	31 August 20X5 $'000
Revenue	1	94,660	82,320
Cost of sales	2	(54,531)	(51,708)
Gross profit		40,129	30,612
Administration expenses	3	(2,760)	(1,720)
Distribution expenses		(13,420)	(13,180)
Other operating expenses		(140)	(110)
Net profit		23,809	15,602

Notes

1. Breakdown of revenue

	31 August 20X6 $'000	31 August 20X5 $'000
Household goods	38,990	41,160
Electronic goods	41,870	32,640
Cloud computing services	12,400	6,520
Gold membership fees	1,400	2,000
	94,660	82,320

2. Breakdown of cost of sales

	31 August 20X6 $'000	31 August 20X5 $'000
Household goods	23,394	28,812
Electronic goods	26,797	21,216
Cloud computing services	4,240	1,580
Gold membership fees	100	100
	54,531	51,708

3. Administration expenses

Included in these costs are the costs of running the customer service department ($860,000 in 20X5; $1,900,000 in 20X6.) This department deals with customer complaints.

4. Non-financial data

	31 August 20X6	31 August 20X5
Percentage of orders delivered on time	74%	92%
No. of customer complaints	1,400,000	320,000
No. of customers	7,100,000	6,500,000
Percentage of late 'Gold' member deliveries	14·00%	2·00%

Required:

Discuss the financial and non-financial performance of Jungle Co for the year ending 31 August 20X6.

Note: There are 7 marks available for calculations and 13 marks available for discussion.

(20 marks)

32 CSC Co is a health food company producing and selling three types of high-energy products: cakes, shakes and cookies, to gyms and health food shops. Shakes are the newest of the three products and were first launched three months ago. Each of the three products has two special ingredients, sourced from a remote part the world. The first of these, Singa, is a super-energising rare type of caffeine. The second, Betta, is derived from an unusual plant believed to have miraculous health benefits.

CSC Co's projected manufacture costs and selling prices for the three products are as follows:

	Cakes	Cookies	Shakes
Per unit	$	$	$
Selling price	5·40	4·90	6·00
Costs:			
Ingredients: Singa ($1·20 per gram)	0·30	0·60	1·20
Ingredients: Betta ($1·50 per gram)	0·75	0·30	1·50
Other ingredients	0·25	0·45	0·90
Labour ($10 per hour)	1·00	1·20	0·80
Variable overheads	0·50	0·60	0·40
Contribution	2·60	1·75	1·20

For each of the three products, the expected demand for the next month is 11,200 cakes, 9,800 cookies and 2,500 shakes.

The total fixed costs for the next month are $3,000.

CSC Co has just found out that the supply of Betta is going to be limited to 12,000 grams next month. Prior to this, CSC Co had signed a contract with a leading chain of gyms, Encompass Health, to supply it with 5,000 shakes each month, at a discounted price of $5·80 per shake, starting immediately. The order for the 5,000 shakes is not included in the expected demand levels above.

Required:

(a) Assuming that CSC Co keeps to its agreement with Encompass Health, calculate the shortage of Betta, the resulting optimum production plan and the total profit for next month. (6 marks)

One month later, the supply of Betta is still limited and CSC Co is considering whether it should breach its contract with Encompass Health so that it can optimise its profits.

Required:

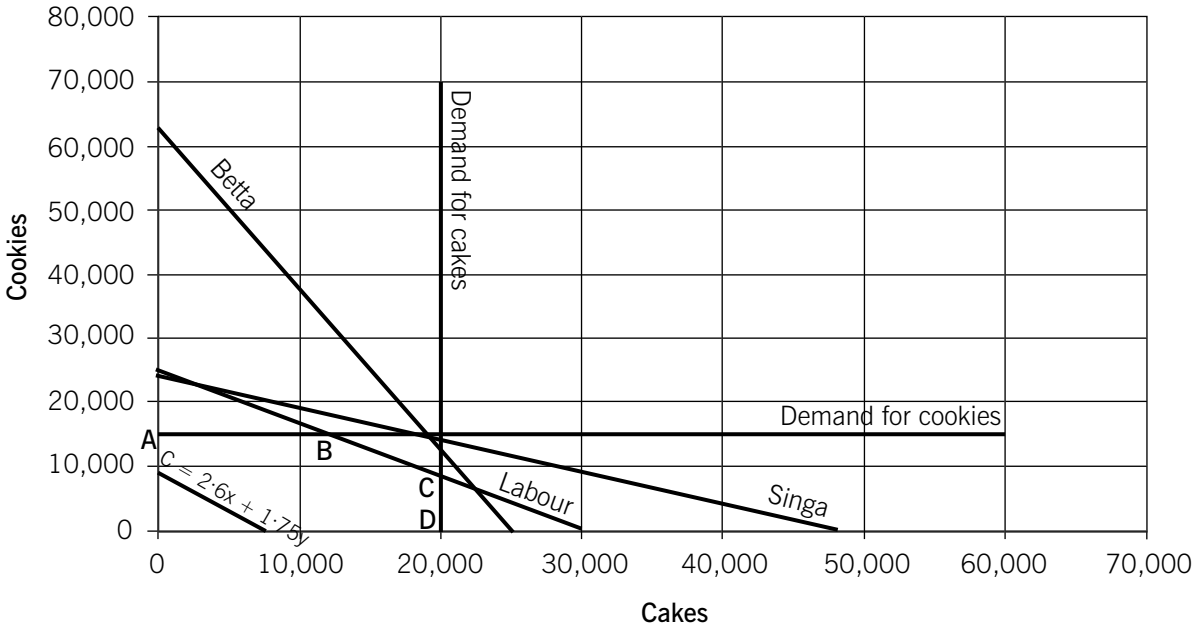
(b) Discuss whether CSC Co should breach the agreement with Encompass Health.

Note: No further calculations are required. (4 marks)

Several months later, the demand for both cakes and cookies has increased significantly to 20,000 and 15,000 units per month respectively. However, CSC Co has lost the contract with Encompass Health and, after suffering from further shortages of supply of Betta, Singa and of its labour force, CSC Co has decided to stop making shakes at all. CSC Co now needs to use linear programming to work out the optimum production plan for cakes and cookies for the coming month. The variable 'x' is being used to represent cakes and the variable 'y' to represent cookies.

The following constraints have been formulated and a graph representing the new production problem has been drawn:

Singa: 0·25x + 0·5y ≤ 12,000
Betta: 0·5x + 0·2y ≤ 12,500
Labour: 0·1x + 0·12y ≤ 3,000
x ≤ 20,000
y ≤ 15,000
x, y ≥ 0



Required:

(c) (i) Explain what the line labelled 'C = 2·6x + 1·75y' on the graph is and what the area represented by the points 0ABCD means. (4 marks)

(ii) Explain how the optimum production plan will be found using the line labelled 'C = 2·6x + 1·75y' and identify the optimum point from the graph. (2 marks)

(iii) Explain what a slack value is and identify, from the graph, where slack will occur as a result of the optimum production plan. (4 marks)

Note: No calculations are needed for part (c).

(20 marks)