

Answer **all** questions in this section

- 1 Elf Limited manufactures two types of products, 'Legolas' and 'Arwen'. All the company's production is sold to a large wholesale business. Information on the projected revenue and costs for this year is given below:

	Legolas (\$)	Arwen (\$)
Sales	60 000	25 000
Rent & rates	10 000	5 000
Raw materials	8 000	2 000
Direct labour	20 000	10 000
Insurances	400	200
Machine running costs	12 000	3 000
Net profit	9 600	4 800

Rent and rates and insurance are fixed costs which have been allocated based on the direct labour cost of the products. All other costs and revenue are directly related to the individual product.

Additional information:

- The wholesaler bought all the 20 000 'Legolas' and 10 000 'Arwen' produced this year, selling them to customers at \$4 and \$3 each respectively. The wholesaler is experiencing an increasing demand for 'Legolas' and intends to raise his price next year to \$4.50.
- 'Legolas' took 8 000 hours to process on the **one** machine owned by the company, whereas 'Arwen' took 2 000 hours. The machine has a maximum capacity of 10 000 hours per year.
- All production is immediately sold to the wholesaler and no inventory is kept.

REQUIRED

- Prepare a statement to show the **contribution made by each product** and the **overall profit** of the business for the current year. [6]
- In the next year, the maximum market demand for the two products will be 40 000 'Legolas' and 36 000 'Arwen'. Calculate the most profitable product mix (optimal production plan). [6]
- If the wholesaler wishes to sell a minimum of 8 000 units of each product, calculate the optimal production plan and the resulting profit for Elf Limited. [4]
- What points does Elf Limited need to bear in mind when negotiating next year's contract with the wholesaler? [4]

[Total: 20]

- 2 Beezy Buses operates four bus routes. You are given details of last year's operations:

<u>Route</u>	<u>City</u>	<u>Village</u>	<u>Park</u>	<u>Zoo</u>
	\$000	\$000	\$000	\$000
Turnover (Revenue)	<u>960</u>	<u>1800</u>	<u>1100</u>	<u>720</u>
Specific fixed overheads	320	460	330	90
General fixed overheads (apportioned)	110	190	140	140
Variable operating expenses	670	800	510	740
Profit (Loss)	<u>(140)</u>	<u>350</u>	<u>120</u>	<u>(250)</u>

Additional information

The variable operating expenses vary directly with turnover. The specific fixed overheads are related directly to the bus route concerned, and would be saved if that particular route were closed down.

The general fixed overheads are apportioned between the four routes on the basis of the ages of the buses used. For every bus route closed down, there would be a 20% saving in the total of the general fixed overheads.

The directors are concerned about the above figures and are considering three options:

- 1 Both the City and Zoo routes to be closed at once.
- 2 Both the City and Zoo routes to be closed, but the Village route to take over part of the City route. \$300 000 of the City route's turnover could be retained, with associated variable operating expenses of \$180 000, and specific fixed overhead costs of \$60 000. There would still be the expected savings in general fixed overheads even if part of the City route was continued.
- 3 With new ticketing procedures it would be possible to reduce the variable operating costs by 10% on each of the City, Village and Park routes, and by 20% on the Zoo route. Then, if the total of the general fixed overheads were re-apportioned equally between the Village and Park routes only, **all four routes would be profitable.**

REQUIRED

- a) Redraft last year's financial statements for the four bus routes into a format for management to see more clearly the position of **each route** and the **overall** profit or loss. [6]
- b) Advise the directors on the effectiveness of each of the three options on improving the overall profits of the business. [9]
- c) Assuming that any combination of the above three options is possible, draft an alternative proposal, illustrated with figures, which offers the best solution to the problem. [5]

[Total: 20]

[Turn over

- 3 Mario Ltd plans to sell vision protection gaming goggles at a standard selling price of \$16 per unit but to encourage sales, the selling price will be reduced to 20% off the standard selling price for the month of September when the product will be launched.

The budgeted unit sales for the first 6 months are as follows:

Year 2022	
Months	Sales Forecast (in units)
September	50 000
October	30 000
November	25 000
December	28 000

Year 2023	
January	32 000
February	30 000

Estimated production costs per unit of product are as follows:

Direct materials (2 units @ \$1.50)	\$3.00
Direct labour (3 hours @ \$2 per hour)	\$6.00
Selling expenses	\$1.00

Additional information

- 1 90% of sales are on credit and credit customers is expected to pay in full, 1 month after sale. Cash customers are allowed a discount of 10%.
- 2 Production began in August. Monthly production will be scheduled so that the finished goods inventory at the end of any month is sufficient to meet the forecast sales target for the following one and a half months.
- 3 The raw materials needed for production will be purchased so that the closing inventory of raw materials at the end of any month are sufficient to meet the production requirements of the next month.
- 4 If more than 60 000 units of raw materials are purchased in a month, the raw materials supplier has agreed to give a special discount of 20% off the usual price of \$1.50 for each additional unit purchased.
- 5 The supplier of the raw materials has agreed to give half-month credit terms, that is, purchases made in September will be paid in the middle of October.
- 6 All other expenses are paid as incurred. Fixed production expenses for the year including annual depreciation of \$48 000, amounted to \$480 000. The fixed expenses are incurred uniformly throughout the year.
- 7 The firm bought non- current assets costing \$50 000 in August 2022, to be paid in November 2022.

8 At the end of August 2022, there is a bank balance of \$200 000.

REQUIRED

- a. A production budget in units, on a monthly basis for the three months ending 30 November 2022. [3]
- b. A raw materials purchase cost budget, on a monthly basis, for the three months ending 30 November 2022. [4]
- c. A month- by- month cash budget for the three months ending 30 November 2022. [9]
- d. Explain the usefulness of a budget to a growing business. [4]

[Total: 20]

[Turn over

Section B

Answer all questions

- 4** A new airline, Jetaway Air Limited, is making plans to operate a direct route between Singapore and Okinawa, Japan.

Operating Plan

The sales and operations department heads have supplied the following information:

- 1 The company plans to lease a used aircraft at an annual cost of \$3 million. The aircraft will fly to Okinawa and back to Singapore on 360 days which translates to 720 flights each year.
- 2 Operating licenses and aircraft maintenance will cost \$696 000 per year. Landing fees will be \$1 500 for each landing at Singapore and \$1 200 for each landing at Okinawa. Aircrew and staff salaries will cost \$2 100 000 per annum. Fuel will cost \$10 600 per single flight.
- 3 The aircraft can carry a maximum of 100 passengers. All passengers will fly 'economy' class and the proposed fare is \$340 per single journey, from Singapore to Okinawa or from Okinawa to Singapore. The net income from duty free sales on the flights are estimated at \$10 per passenger per single flight.
- 4 All passengers will be offered a free in-flight meal, at a cost of \$30 per meal. As the company cannot predict how many passengers will require a meal, they will always buy enough meals for a full passenger load on each flight. Free drinks are offered to all passengers at an estimated cost per passenger of \$25.
- 5 The company uses agents at each destination to handle check-in and passenger baggage. The cost will be \$35 per passenger on each flight.

Alternative to operating plan proposed by director

As the demand for air travel has not fully picked up, a director, Mr Econ Lux, proposes at a recent meeting, to alter the seating so as, to fly 30 business class passengers and 50 economy class passengers. Business class passengers would pay 50% more than economy class passengers.

Capital Investment Plan

The company is also considering the purchase of aircraft. A new airplane will cost \$10 million. Besides being more fuel efficient, it employs up to date technology and features which will enhance passenger safety and comfort. The company believes in keeping a young fleet and intends to replace its aircraft every 5 years when they expect to sell it for \$5 million. Being a new company, the business is particularly concerned with the company's liquidity.

The accountant has been asked to evaluate whether, or not the aircraft should be purchased. She has made the following calculations for annual savings from operations if the aircraft is purchased:

Year	Savings \$' 000
1	2 000
2	4 000
3	7 500
4	8 000
5	(1 000)

The company uses a weighted average cost of capital of 12% for investment appraisal decisions. The discount factors at 12% are:

Year	Discount Factor
1	0.893
2	0.797
3	0.712
4	0.636
5	0.567

The accountant has been evaluating other aircraft which may be suitable. She has found an alternative airplane and made the following preliminary calculations in respect to the alternative airplane:

Capital cost	\$15 000 000
Payback period	4 years
Net present value	\$7 700 000

REQUIRED

a Based on the information supplied by the sales and operations department heads:

- (i) Prepare a statement showing the computation of annual fixed cost of the company. [6]
- (ii) Compute the contribution margin per passenger. [3]
- (iii) What is the average number of passengers the company needs to carry on each flight to break even? [2]

b If Mr Econ Lux's alternative proposal is adopted,

- (i) Calculate how many business class passengers will be needed on each flight for the service to break even. In your computation, assume that the economy section will always be 90% full. [4]
- (ii) With reference to your computation in b (i), advise if this proposal should be adopted. [4]

[Turn over

- c Explain the difference between payback and net present value in relation to investment appraisal. [4]
- d Calculate the following for the new aircraft:
- (i) The payback period [4]
 - (ii) The net present value [4]
- e Discuss **two** non-financial factors the directors of the company should take into account when deciding whether or not to buy the aircraft. [4]
- f Advise the directors which aircraft they should purchase. Justify your answer. [5]

[Total: 40]

End of Paper