PENINSULA COLLEGE GEORGETOWN DK266-03(P)

FINAL EXAMINATION

Programme Name	:	**CERTIFICATE IN BUSINESS STUDIES**
Course Code & Name	:	**CBS1034 BUSINESS MATHEMATICS**
Duration	:	**3 HOURS**

INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY.**
2. The question paper consists of **FOUR (4)** questions.
3. Answer **ALL** questions in the question paper.
4. Answers to the questions are to be written into the examination booklet.
5. Electronic dictionaries, lecture notes, files or any unauthorised materials except writing equipment are strictly prohibited.

This question paper must be submitted along with all used and/or unused rough papers and/ or graph papers (if any). Candidates are **NOT ALLOWED** to take any examination paper(s) used or unused out of the examination hall.

WARNING:

The Examination Board of Peninsula College Georgetown regards cheating as a very serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in the accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from Peninsula College Georgetown.

(*This booklet contains 5 printed pages including this page*)

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ALLOWED TO DO SO

Answer **ALL** questions on the separate sheet provided. **[100 marks]**

1. a) Solve the expression below:

   i) $7^2 - 2(16 \div 2) \times 3 + 4$ (3 marks)

   ii) $5 + 2^3 \times (7 - 3) \div 2$ (3 marks)

   b) Solve the quadratic equation $3x^2 + 7x - 60 = 0$ by using quadratic formula. (6 marks)

   c) Solve the following simultaneous linear equations by using elimination method.

$$2x = y + 10$$
$$3x + 7y = 0$$

(7 marks)

   d) Joshua borrowed RM30,000 from Hong Leong Bank to buy his new motorcycle. The loan is compounded yearly with interest of 4.5% per annum. Find the total amount he must paid after 4 years. (6 marks)

Total: [25 marks]

2. a) State **FOUR (4)** examples of fixed cost and variable cost. (8 marks)

   b) XYZ Corporation specialize in making shoes with a fixed cost are RM 800 per month. A pair of shoes was sold for RM 250 and expected to sell 20 pair of shoes per month. The variable costs for a pair of shoes are RM150.
   Based on the above scenario, calculate the

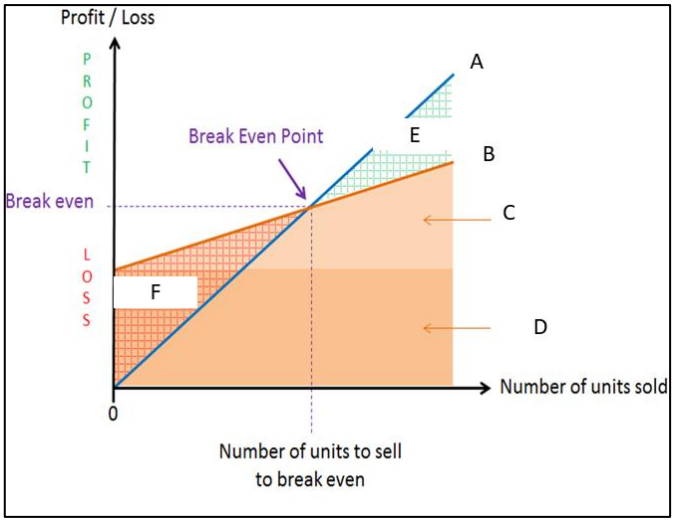
   i) Total Revenue (2 marks)

   ii) Total cost (2 marks)

   iii) Profit if the shoes sold is 30 pair of shoes. (3 marks)

   iv) Breakeven point (4 marks)

2 c) Name the label from A to F in the following break-even diagram. (6 marks)



Total: [25 marks]

3. a) Define the following terms:

i) Accumulated depreciation (2 marks)

ii) Book value (2 marks)

b) In the case of Chen Corporation, an investment of RM45,000 was made in a delivery vehicle. This vehicle is projected to have a useful life of five years, with an estimated salvage value of RM9,000 at the end of the five-year period. Using the straight-line depreciation method:

i) Calculate the annual depreciation. (3 marks)

ii) Calculate the annual rate of depreciation (3 marks)

iii) Calculate the book value of the lorry at the end of the third year. (3 marks)

c) Computer equipment cost RM25,000. ABC Corporation expect the computer equipment to have a useful life of 4 years, and its estimated salvage value at the end of the 4-year period is RM5,000. Using the straight-line method of depreciation, prepare a depreciation schedule:

Year	Amount of Depreciation, RM	Accumulated Depreciation, RM	Book Value
0	-	-	25,000
1			
2			
3			
4			

(12 marks)

Total: [25 marks]

4. a) The following table represents the prices of four brands in the year 2020,2021,2022 and 2023.

Brand	2020	2021	2022	2023
T	12.00	14.00	16.00	18.00
U	17.00	19.00	21.00	23.00
V	13.00	15.00	18.00	21.00
W	23.00	25.00	28.00	31.00

i) Calculate the price index for 2021,2022 and 2023 by using year 2020 as base period.

(12 marks)

ii) Find the average price index for year 2021, 2022 and 2023. (7 marks)

b) The following table shows the quantity for three types of vegetables sold in 2022, 2023 and relative quantity in 2023. Using year 2022 as the base year, find the values of **X, Y** and **Z.**

(6 marks)

Type	Quantity in 2022, units	Quantity in 2023, units	Quantity Relatives
Carrot	**X**	1000	120
Spinach	1200	**Y**	140
Cabbage	400	600	**Z**

Total: [25 marks]

- END OF QUESTIONS -

FORMULAE LIST

Solving Equation

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Interest

$$Interest, I = Prt$$

$$Simple\ interest, A = P(1 + rt)$$

$$Compounded\ Amount, A = P\left(1 + \frac{r}{n}\right)^{nt}$$

Business Ownership

$$Total\ Revenue, TR = P \times Q$$

$$Total\ Cost, TC = FC + VC$$

$$Contribution\ Margin, CM = P - VC$$

$$Contribution\ Margin\ Ratio, CMR = \frac{P - VC}{P} \times 100\%$$

$$Break - even\ Point, BEP\ (Unit) = \frac{FC}{CM}$$

$$Break - even\ Point\ , BEP(Price) = \frac{FC}{CMR} = BEP(unit) \times P$$

$$Profit = TR - TC$$

Depreciation

$$Annual\ Depreciation = \frac{C - Salvage\ Value}{Useful\ Life}$$

$$Depreciation\ Rate, r = \frac{100}{Useful\ life}$$

$$Book\ Value, BV = Cost - Accumulated\ Depreciation$$

$$Book\ Value, BV = C\ (1 - r)^n$$

Index Number

$$Price\ Index, I = \frac{P_1}{P_0} \times 100$$

$$Average\ of\ Price\ Index = \frac{\sum \frac{P_1}{P_0} \times 100}{k}$$

$$Aggregate\ of\ Price\ Index = \sum \frac{P_1}{P_0} \times 100$$

$$Quantity\ Index, I = \frac{q_1}{q_0} \times 100$$

$$Average\ of\ Quantity\ Index, I = \frac{\sum \frac{q_0}{q_1} \times 100}{k}$$

$$Aggregate\ of\ Quantity\ Index = \sum \frac{q_1}{q_0} \times 100$$

- END OF FORMULAE LIST -