PENINSULA COLLEGE GEORGETOWN

FINAL SEMESTER EXAMINATION

Student NRIC : _____

Student ID : _____

Programme	:	**CERTIFICATE IN BUSINESS STUDIES (MQA/PA12514)**
Intake	:	**JUL / SEP 2021 (YEAR 1 SEMESTER 1)**
Course	:	**BUSINESS MATHEMATICS**
Course Code	:	**CBS1034**
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 4 printed pages including this page*)

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

For examiner's use only

QUESTION NO.	MARKS
1	/ 25
2	/ 25
3	/ 25
4	/ 25
Total	**/ 100**

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

1. a) A manufacturing company provides the following data:

Fixed Expenses	: RM90,000
Variable Cost Per Unit	: RM9
Selling Price Per Unit	: RM12

Find:

i) the contribution margin ratio (CMR) in percentage, % (4 marks)

ii) the BEP in value, RM (3 marks)

iii) number of units to be sold to earn a profit of RM450,000 (6 marks)

b) Break-even analysis can be conducted by using the graphing method.

i) Draw a graph to show break-even analysis on the graph paper. (5 marks)

ii) Label the following contents in the graph also. (7 marks)

Variable Costs, Fixed Costs, $C(x)$, $R(x)$, Profit Area, Loss Area, Break-even Point

Total: [25 marks]

2. a) A company bought a car for RM62,000. This car is expected to last for 8 years, and its salvage value is RM6,000. Using the straight line method, calculate:

i) the annual depreciation. (4 marks)

ii) the annual depreciation rate. (3 marks)

iii) the accumulated depreciation for 3 years. (3 marks)

iv) the book value of the car after 3 years. (3 marks)

b) According to **Question 2 (a)**, compute its book value after 4 years using the reducing balance method if the depreciation rate same as the straight line method. (4 marks)

c) XYZ bank saving account offers 4% compounded every quarter. Jayden deposits £200 in his account on the 1st of April. Identify the total amount in his saving account at the end of the year. (8 marks)

Total: [25 marks]

3. a) The prices per 400 grams of canned food for the years 2018 and 2019 were as follow:

Canned Food	Price in RM	
	2018	2019
Chick Peas	3.20	3.80
Kidney Beans	3.00	3.40
Chopped Tomatoes	4.00	4.30
Sweet Kernel Corn	2.80	3.10
Baked Bean	3.40	3.90

i) Find the price index for each canned food above. (10 marks)

ii) Determine and explain the average price index for all canned food above. (5 marks)

b) Galvin's shopping cart contains three items: face masks, face shields and sanitisers with the following prices and quantities in 2020 and 2021:

Items	Quantity	Price (RM)	
		2020	2021
Face Masks	5 boxes	20 / box	25 / box
Face Shields	10 pieces	5 / piece	5.50 / piece
Sanitisers	2 bottles	50 / bottle	60 / bottle

Compute the value index for the shopping carts in 2021. Interpret the result computed. (10 marks)

Total: [25 marks]

4. a) Solve the quadratic equation, $x^2 - 5x - 6 = 0$, by using the quadratic formula. (7 marks)

b) At the end of December 2020, the number of animals in the national park was 2560. The number of animals increases 60% every month. Get the number of animals that would have been there at the beginning of December 2020. (3 marks)

c) Provide the solution of $\frac{p+2x}{p-2x} + \frac{p+2y}{p-2y}$, if $p = \frac{4xy}{x+y}$. (15 marks)

Total: [25 marks]

- END OF QUESTIONS -

FORMULAE LIST

Solving Equation

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

Interest

$$Interest, I = Prt$$

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

$$Prensent\ Value, P = \frac{A}{1+rt}$$

$$Compund\ Amount, A = P(1 + r)^t$$

Break-Even Analysis

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

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

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

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

$$Break - Even\ Point, BEP = \frac{FC}{CM}$$

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

$$Profit = TR - TC$$

Depreciation

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

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

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

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

Index Number

$$Price\ Index, I = \frac{p_1}{p_0} \times 100$$

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

$$Average\ of\ Price\ Index, I = \frac{\sum\left(\frac{p_1}{p_0} \times 100\right)}{k}$$

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

- END OF FORMULAE LIST -