PENINSULA COLLEGE GEORGETOWN

FINAL SEMESTER EXAMINATION

Programme	:	**CERTIFICATE IN BUSINESS STUDIES**
Course	:	**BUSINESS MATHEMATICS**
Course Code	:	**CBS1034**
Duration	:	**3 hours**

INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY.**
2. This 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

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) Calculate the following expression:

   i) $7 - 24 \div 8 \times 4 + 6$ (3 marks)

   ii) $(3 \times 5^2 \div 15) - (5 - 2^2)$ (3 marks)

   iii) $6 \times 4 \div 12 + 72 \div 8 - 9$ (3 marks)

   b) Convert the following linear equations into slope-intercept form:

   i) $2x + 4y = 10$ (3 marks)

   ii) $y - 10 = 2(x + 4)$ (3 marks)

   iii) $12x + 3y - 24 = 0$ (3 marks)

   c) A sum of RM 6000 is deposited in a bank for simple interest of 4% per annum for a year. Find the amount of money at the end of 5 years.

   (3 marks)

   d) Peter invested RM2,000 for three years. Find the interest received at the end of the three years if the investment earns 5% compounded interest annually.

   (4 marks)

   Total: [25 marks]

2. a) State the value for A - H in the following table: (16 marks)

Location	Fixed cost per year, RM	Production volume, unit	Variable cost per unit	Variable cost per year, RM	Total cost, RM
P	200,000	20,000	18	***A***	***B***
Q	100,000	25,000	***C***	400,000	***D***
R	***E***	16,500	20	***F***	480,000
S	250,000	***G***	25	***H***	530,000

   b) A non-profit organization is selling shirts to raise money. They purchase 500 shirts at a cost of RM 5 per shirt. During the month, they are only able to sell 388 shirts. If the shirts sell for RM13 each, how much does the organization earn/lose during this campaign?

   (4 marks)

2. c) Below is the information was reported by a company at the end of the year.

Sales volume	30,000 units
Selling price per unit	RM 9.50
Variable cost per unit	RM 5.50
Rental fees	RM 80,000
Insurance	RM 20,000

Calculate the break-even point in

i) unit (3 marks)

ii) ringgit malaysia, RM (2 marks)

Total: [25 marks]

3. a) A fast-food restaurant purchased a new low-fat chicken cooker at a cost of RM 26,500. The estimated life of the fryer is 5 years, with a salvage value of RM 3,500. Using the straight-line method, find

i) the annual rate of depreciation. (2 marks)

ii) the annual amount of depreciation. (4 marks)

iii) the book value at the end of first year. (2 marks)

b) Capital Concrete selects the straight-line method of depreciation for machine costing RM 12,000 with a 3-year life and an expected salvage value of RM 3,000. Prepare a depreciation schedule as follow:

Year	Amount of depreciation, RM	Accumulated depreciation, RM	Book value
0			
1			
2			
3			

(12 marks)

c) The cost of a fishing boat is RM 150,000. The declining balance method is used for computing depreciation. If the depreciation rate is 15%, compute the book value and accumulated depreciation of the boat at the end of five years.

(5 marks)

Total: [25 marks]

4. a) The pricing trend of adults clothing items are shown as below:

Product	Price in RM			
	2018	2019	2020	2021
T-shirt	13.00	13.00	15.00	15.50
Long pants	19.00	19.50	22.00	24.00
shorts	12.00	11.00	12.00	13.00

i) Calculate the price index for years 2019, 2020 and 2021 by using year 2018 as base period.

(12 marks)

ii) Compute the average price index for year 2019, 2020 and 2021. (7 marks)

b) The following table shows the quantity for three brands of washing machine A, B, C sold in year 2018 and 2020 and the quantity relatives in 2020. Using year 2018 as the base year, find the values of X, Y and Z.

Brands	Quantity in 2018, units	Quantity in 2020, units	Quantity relatives
A	800	1000	X
B	1200	Y	140
C	Z	600	120

(6 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 -