PENINSULA COLLEGE
GEORGETOWN

FINAL EXAMINATION

Programme Name	:	**DIPLOMA IN BUSINESS STUDIES**
		DIPLOMA OF ACCOUNTANCY
		DIPLOMA IN LOGISTIC MANAGEMENT
Course Code & Name	:	**DBMT3013 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 4 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.

Items	Year 2015 (RM/unit)	Year 2016 (RM/unit)
Eggs	0.40	0.35
Tomatoes	1.50	1.20
Cucumbers	2.00	2.20
Chili	0.20	0.35
Cabbages	4.50	4.00
Brinjals	4.20	4.20

a) Given the data above, calculate the price index of each item by using 2015 as the base year. (18 marks)

b) By using the same data, calculate the

i) simple aggregative price index for year 2016 (4 marks)

ii) simple average of price relative index for year 2016 (3 marks)

Total: [25 marks]

2. Considering the linear programming problem as below.

Maximize $x + 3y$
subject to: $3x + y \leq 21$
$x + 4y \leq 12$
$x \geq 0 , y \geq 0$

By using simplex method, compute the elimination process by using the right pivot to determine the value for x and y, and the maximization value. (25 marks)

Total: [25 marks]

3. A company produced its product and sold it at RM12.50 per unit. During the production, RM5 of variable cost is required each unit of product. Fixed costs, incurred uniformly throughout the year, is RM150,000.

a) What is the company's break-even point in sales dollars and units? (7 marks)

b) If the company's fixed product costs unexpectedly increased by 25%, what is the new unit selling price that would yield the same break-even sales as before the cost increase? (9 marks)

c) If the company want to yield a profit of RM400,000, how many units of product need to be sold if the price per unit, variable cost per unit and fixed cost are still maintained at RM12.50, RM5 and RM150,000? (4 marks)

d) If the company's variable cost per unit decreased to RM4, what is the new break-even point in units and total sales, assuming the fixed cost and selling price per unit remained at RM150,000 and RM12.50? (5 marks)

Total: [25 marks]

4. Joshua and Ken run a small badminton racquets shop called "JK Enterprise". They need to make order for the coming month. The actions taken and states of nature are shown as below.

Actions	States of Nature (RM)			
	Demand 10	Demand 30	Demand 50	Demand 70
Buy 100 racquets	150	200	400	280
Buy 80 racquets	700	350	550	440
Buy 60 racquets	720	900	1000	1150

Applying each of the decision criterion, how many badminton racquets should Joshua and Ken order?

a) Maximax Criterion (5 marks)

b) Maximin Criterion (5 marks)

c) Minimax Regret Criterion (5 marks)

d) Equally Likely Criterion (5 marks)

e) Criterion of Realism ($\alpha = 0.3$) (5 marks)

Total: [25 marks]

- END OF QUESTIONS -

FORMULAE LIST

Index Number

Simple Price Index = $\frac{P_1}{P_0} x100$

Simple Average of Price Relative Index = $\frac{\Sigma\left(\frac{P_1}{P_0} x10\ \right)}{N}$

Simple Aggregative Price Index = $\frac{\Sigma P_1}{\Sigma P_0} x100$

Break-even Analysis

BEP: TR = TFC + TVC

TR = TFC + TVC + Net income

Decision Analysis

Weighted average = α(maximum in row) + (1 – α)(minimum in row)