

**POLITEKNIK**  
Jabatan Pengajian Politeknik

EXAMINATION AND EVALUATION DIVISION  
DEPARTMENT OF POLYTECHNIC EDUCATION  
(MINISTRY OF HIGHER EDUCATION)

COMMERCE DEPARTMENT

FINAL EXAMINATION  
JUNE 2012 SESSION

**PB203 : BUSINESS MATHEMATICS**

**DATE : 22 NOVEMBER 2012(THURSDAY)**  
**DURATION : 2 HOURS (8.30 AM - 10.30 AM)**

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This paper consists of **FIVE (5)** pages including the front page.  
Section A : Structured (4 questions – answer all)

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**CONFIDENTIAL**  
**DO NOT OPEN THIS QUESTION PAPER UNTIL INSTRUCTED BY**  
**THE CHIEF INVIGILATOR**

(The CLO stated is for reference only)





1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1801. It is a very important document, as it is the first time that the President has addressed the Congress since the establishment of the office.

2. The second part of the document is a report from the Secretary of the Treasury, dated January 1, 1801. It contains information about the state of the nation's finances at the time.

3. The third part of the document is a report from the Secretary of the Navy, dated January 1, 1801. It contains information about the state of the navy at the time.

4. The fourth part of the document is a report from the Secretary of the War, dated January 1, 1801. It contains information about the state of the army at the time.

5. The fifth part of the document is a report from the Secretary of the Interior, dated January 1, 1801. It contains information about the state of the interior at the time.

6. The sixth part of the document is a report from the Secretary of the State, dated January 1, 1801. It contains information about the state of the foreign relations at the time.

7. The seventh part of the document is a report from the Secretary of the War, dated January 1, 1801. It contains information about the state of the army at the time.

8. The eighth part of the document is a report from the Secretary of the Navy, dated January 1, 1801. It contains information about the state of the navy at the time.

9. The ninth part of the document is a report from the Secretary of the Treasury, dated January 1, 1801. It contains information about the state of the nation's finances at the time.

10. The tenth part of the document is a report from the Secretary of the State, dated January 1, 1801. It contains information about the state of the foreign relations at the time.





**SECTION A****STRUCTURED (100 marks)****INSTRUCTION :**

This section consists of **FOUR (4)** structured questions. Answer **all** questions.

**QUESTION 1**

(a) Calculate the value of  $x$ . [CLO 1: C3]

i.  $5x + 12 = 11x$  (3 marks)

ii.  $\frac{x}{2} + \frac{3-x}{4} = 12$  (3 marks)

(b) Solve the quadratic equation below.

i.  $2x^2 - 5x + 2 = 0$  (3 marks)

ii.  $(4x - 6)(2x + 4) = -6$  (6 marks)

(c) Solve this system of equation.

$$x + y + z = 6$$

$$x - y + z = 2$$

$$x + 2y - z = 2$$

(10 marks)

**QUESTION 2**

The following information was provided by Zara Sdn Bhd for the production of a product for the year ended 30.12.2011.

Sales volume (kg) = 50,000

Price per kg = RM6.70

Variable Cost per kg = RM2.45

Annual Fixed Cost = RM80,000

Calculate:

[CLO 1 : C3]

- (a) The profit made in that year. (7 marks)
- (b) The profit when the selling price increase by 15%. (6 marks)
- (c) The Breakeven Point in units and RM. (7 marks)
- (d) The quantity needs to be sold to get a profit of RM60, 000. (5 marks)

**QUESTION 3**

- (a) Dr Rozaili plan to have his own building. The building will cost him RM 3,000,000. For that purpose, he has approached the bank XYZ. The bank requires him to pay for the down payment of 10 % and monthly payment of RM 15,000 for 25 years. Other payments involve are lawyer fee and insurance for RM 20,000 and RM 50,000 respectively. You are required to calculate :

- i. Interest amount [CLO 1 : C3]  
(5 marks)
- ii. Interest rate [CLO 1 : C3]  
(11 marks)

- iii. The rebate if Dr Rozaili wants to settle all his debts after 20 years.

[CLO 1 : C3]

(4 marks)

- (b) Azmi has won an annuity that pays him RM5, 000 every 4 months for 2 years. Prepare the amount of annuity if the interest rate is 9% compounded every 4 months?

[CLO 1 : C3]

(5 marks)

#### QUESTION 4

Paddy (*Padi*) is harvested in Kedah and stored in warehouses in three different cities - Alor Setar, Jitra and Kulim. These warehouses supply three mills, located in Mills 1, Mills 2 and Mills 3. Paddy is shipped to the mills in railroad cars, each of which is capable of holding one ton of paddy. Each warehouse is able to supply the following number of tons (i.e., railroad cars) of paddy to the mills on a monthly basis:

<u>Warehouse</u>	<u>Supply</u>
Alor Setar	150
Jitra	175
Kulim	275
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<b>Total</b>	<b>600 tons</b>
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Each mill demands the following number of tons of paddy per month.

<u>Mills</u>	<u>Demand</u>
Mill 1	200
Mill 2	100
Mill 3	300
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<b>Total</b>	<b>600 tons</b>
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The cost of transporting one ton of paddy from each warehouse (source) to each mill (destination) differs according to the distance and rail system. These costs are shown in the following table.

Paddy warehouse	Mills (RM)		
	Mill 1	Mill 2	Mill 3
Alor Setar	6	8	10
Jitra	7	11	11
Kulim	4	5	12

**You are required to:**

[CLO 1 : C3]

- (a) Prepare a transportation table base on the given data (5 marks)
- (b) Calculate the initial solution by using:
- The north west corner method (10 marks)
  - The minimum cost method (10 marks)