



**PART B : PROBLEM SOLVING QUESTIONS (70 MARKS)**

**INSTRUCTION(S) : FOUR (4) problem solving questions. Answer ALL questions in the Answer Booklet(s) provided.**

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**Question 1**

- a. RM 14500 was saved every six month for three years in an account that pays 10% compounded semi-annually. Find the accumulated value if the interest rate was changed to 12% compounded semi-annually after two year.
- b. Find the present value of an annuity of RM 3450 every month for 2 years if the first payment is made after 1 year. Assume money is worth 6% compounded monthly.
- c. Zukri won an annuity that pays RM 7500 every three month for four years. Calculate the present value of this annuity if money is worth 15% compounded quarterly.

(10 Marks)

(5 Marks)

(5 Marks)

**[Total: 20 marks]**

## Question 2

a. Find  $f'(x)$  if:

I.  $f(x): 20 + 2x^2 + 3x^4$

(3 Marks)

II.  $f(x): x^{10} + \sqrt[4]{x}$

(3 Marks)

III.  $f(x): (9x + 31)(x - 9)$

(4 Marks)

b. Find the equation of the tangent line to the curve  $f(x) = 2x^2 + 14x + 4$  at the point  $x = 5$ .

(10 Marks)

**[Total: 20 marks]**

### Question 3

- a. Solve  $x^2 - 9x + 8 = 9x + 12$  by using quadratic formula. (4 marks)
- b. The demand function for a good is given as  $Q = 65 - 5P$ . Fixed costs are RM 30 and each unit produced costs an additional RM 2.
- i. Write down the equation for total revenue and total costs in terms of  $Q$ . (3 marks)
- ii. Find the break-even points algebraically. (3 marks)

**[Total: 10 marks]**

#### Question 4

a. Calculate the equilibrium price and quantity for demand and supply functions below:

i. Demand function (Q) =  $81 - 0.05P$

Supply function (Q) =  $-24 + 0.025P$

(5 marks)

ii. Demand function (P) =  $200 - 5Q$

Supply function (P) =  $92 + 4Q$

(5 marks)

b. i. Determine the equation of the line which has a slope  $m = 1.5$ , and which passes through the point  $x=4, y=12$

(5 Marks)

ii. A supplier is known to supply a quantity of goods  $Q=30$  when the market price  $P$  is 25 per unit. If the quantity supplied increases by 3 for each unit increase in price, determine the equation of the supply function in the form  $Q = f(P)$ .

(5 Marks)

**[Total: 20 marks]**

**END OF QUESTION PAPER**