

FINAL EXAMINATION
JULY 2021

COURSE TITLE

BUSINESS MATHEMATICS

COURSE CODE DATE/DAY

BMAT1213/BMAT2213/RMAT2213

23 October 2021 / SATURDAY

TIME/DURATION

01:00 PM - 3.00PM / 2 Hours

INSTRUCTIONS TO CANDIDATES :

1. Please read the instruction under each section carefully.
2. Candidates are reminded not to bring into examination hall/room any form of written materials or electronic gadget except for stationery that is permitted by the Invigilator.
3. Students who are caught breaching the Examination Rules and Regulation will be charged with an academic dishonesty and if found guilty of the offence, the maximum penalty is expulsion from the University.

*****DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO*****


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FINAL EXAMINATION

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DATE/DAY TIME/DURATION	23 OCTOBER 2021/THURSDAY 1.00 PM – 3.00 PM/ 2 HOURS

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(This Question Paper consists of **6** Printed Pages including front page)

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There are SEVEN(7) questions. Answer all the questions.

(70 marks)

1. A car costing RM100 000 depreciates RM10 000 for the first year, RM9 000 for the second year, RM8 000 for the third year and so on until its annual depreciation is zero.
 - a. Find the depreciation for the 7th year (4 marks)
 - b. Find the accumulated depreciation at the end of seven years. (3 marks)
 - c. Find book value. (Book Value : Cost – Accumulated Depreciation) (3 marks)

(10 marks)
2. Kamal invested RM6 800 four years ago at simple interest rate of 4.55% per annum. Find
 - a. The total interest earned (4 marks)
 - b. The total accumulated amount today (3 marks)

(7 marks)
3. RM25 000 is invested for 4 years 9 months. If the investment is offered 12% compounded semi-annually for the first two years and 10% compounded quarterly for the rest of the period. Find the future value of the investment.

(10 marks)
4. Johan won an annuity which pays RM150 at the beginning of each month for 30 months, the first payment being now. Find the present value of the annuity if the money is worth 12% compounded monthly

(8 marks)

5. An invoice dated 10 May 2020 for RM8 200 inclusive of handling charges of RM70 was offered trade discounts of 9% and 5% and cash discount terms of 8/10,3/20 and n/30. Find

a. the net price after trade discount

(5 marks)

b. the amount paid on 23 May 2020

(5 marks)

(10 marks)

6. A retailer buys a set of plates for RM500. Operating expenses incurred during the sale of these

plates are 10% of the cost price. If the retailer makes a 25% net profit based on the cost, find

a. the retail price

(2 marks)

b. the gross profit

(2 marks)

c. the net profit

(2 marks)

d. the breakeven price

(2 marks)

e. the maximum markdown that could be offered to customers so that there is no profit or loss

(2 marks)

(10 marks)

7.

- a. A bank discounts a RM10 000 note due in three months, using a bank discount rate of 5%. Find the equivalent simple interest rate charged by the bank.

(5 marks)

- b. Khairul bought a television set with cash price of RM6 000. He paid a 10% down payment and the balance was settled by making 24 monthly payments. If the interest was 8% per annum on the original balance. Find

i. the instalment price of the television

(5 marks)

ii. the monthly payment

(5 marks)

(15 marks)

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*** END OF QUESTION PAPER ***

List of Formulas

Sequence

$$T_n = a + (n - 1)d$$

$$S_n = \frac{n}{2} [2a + (n - 1)d]$$

$$T_n = ar^{n-1}$$

$$S_n = \frac{a(r^n - 1)}{r - 1}, r > 1, S_n = \frac{a(1 - r^n)}{1 - r}, r < 1$$

Simple Interest

$$S = P(1 + rt)$$

$$P = S(1 + rt)^{-1}$$

Compound Interest

$$S = P(1 + rt)^n$$

$$1 + r = \left(1 + \frac{k}{m}\right)^m$$

$$P = S(1 + rt)^{-1}$$

Annuity

$$S = R \left[\frac{(1+i)^n - 1}{i} \right]$$

$$A = R \left[\frac{1 - (1+i)^{-n}}{i} \right]$$



Trade and Cash Discounts

$$NP = L(1 - r)$$

$$r = 1 - (1 - r_1)(1 - r_2) \dots$$

Markup and Markdown

$$RP = C + \text{Markup}$$

$$MD = OP - NP$$

$$R = C + NP + OE$$

$$BEP = C + OE$$

Promissory Notes

$$D = Sdt$$

$$P = S(1 - dt)$$

Instalment Purchases

$$A = R \left[\frac{1 - (1+i)^{-n}}{i} \right]$$

$$r = \frac{2ml}{B(n+1)}$$

$$B = RN - I \left[\frac{N(N+1)}{n(n+1)} \right]$$

Depreciation

$$\text{Annual Depreciation} = \frac{\text{Cost} - \text{Salvage value}}{\text{Useful Life}}$$

$$r = 1 - \sqrt[n]{\frac{s}{c}}$$

$$S = \frac{n(n+1)}{2}$$

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