UNIRAZAK
UNIVERSITI TUN ABDUL RAZAK

FINAL EXAMINATION

JULY 2021

COURSE TITLE	**BUSINESS MATHEMATICS**
COURSE CODE DATE/DAY	**BDD1013/BMAT1113/RMAT1113**
	23 October 2021 / SATURDAY
TIME/DURATION	**01:00 PM - 03:00 PM / 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.

(This Question Paper consists of 3 Printed Pages including front page)

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

This paper consists of ONE (1) section. Answer according to the instruction provided.
(50 Marks)

There are FIVE (5) questions in this section. Answer all the questions.

1. Given the sequence 1 000, 1 100, 1 210, 1 331,….

   a. What type of sequence is this? (1 mark)

   b. Find the tenth term. (3 marks)

   c. Find the sum of the first 15 terms. (4 marks)

2. Mr. Kamal invested RM10 000 at simple interest rate of 3.5% per annum. If the amount accumulated on 20th April 2020 was RM10,025.49, determine the date of the investment using the Banker's Rule. (8 marks)

3. If Joan invested RM4,800 at 6% compounded quarterly for six years, find

   a. the amount at the end of six years. (4 marks)

   b. the interest earned. (4 marks)

4. The list price of an item is RM1,300 and the trade discounts given are 10%, 5% and 3%. Find

   a. the amount of discount. (4 marks)

   b. a single discount that is equivalent to the chain discount rate. (4 marks)

5. Ros borrows RM6, 000 for six months at the discount rate of 6% from a bank. Find the bank discount and the proceeds she receives. (8 marks)

6. A dealer buys a computer for RM3,600. Operating expenses are estimated to be 5% of the retail price. If the dealer wants 15% net profit based on the retail price, find

   a. the retail price. (4 marks)

   b. the net profit. (3 marks)

   c. the markup. (3 marks)

*** 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

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

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

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

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

$NP = L(1 - r)$

$r = 1 - \left(1 - r_1\right)\left(1 - r_2\right)\ldots$

Markup and Markdown

$RP = C + Markup$

$MD = OP - NP$

$R = C + NP + OE$

$BEP = C + OE$

$List\ of\ Formulas$

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

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

$r = 1 - \sqrt[n]{\frac{S}{C}}$

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