MAT402 QUIZ (1 HOUR)
OCT 2022 - MAC 2023

List of Formula:

$T_n = a + (n-1)d$	$S_n = \frac{a(r^n - 1)}{r-1}$	$S = P(1 + rt)$
$S_n = \frac{n}{2}(2a + (n-1)d)$	$S_n = \frac{a(1 - r^n)}{1-r}$	$D = Sdt$
$T_n = ar^{n-1}$	$I = Prt$	$Proceed = S(1 - dt)$

QUESTION 1

a) The seventh term and the tenth term of an arithmetic sequence are 39 and 51, respectively. Find the first term and the common difference. (*5 marks*)

b) The first term of a geometric sequence is $\frac{40}{27}$ and its last term is $\frac{1215}{32}$. If the common ratio is $\frac{3}{2}$, find the number of terms in the sequence. (*5 marks*)

c) The sum of the first five terms and the sum of the first ten terms of an arithmetic sequence are 125 and 400, respectively. Find the first term and the common difference. (*5 marks*)

QUESTION 2

a) Darwish saves RM X in a bank. After 4 years, his savings will be worth RM3,213. If the simple interest rate is 6.5% per annum, find the value of X and the amount of interest Darwish earned. (*5 marks*)

b) On 20 January 2022, Qaisara took a loan of RM10,000 from a bank that charged simple interest of r% per annum. On 5 May 2022, she paid RM10,163.97 to settle the loan. Using the Banker's Rule, find the value of r. (*5 marks*)

c) Melissa borrowed RM109,000 for 9 years from a bank and the amount received was RM60,931. Find the discount rate charged by the bank. (*5 marks*)