KEMENTERIAN PENDIDIKAN TINGGI

POLITEKNIK MALAYSIA KUCHING SARAWAK

JABATAN MATEMATIK, SAINS DAN KOMPUTER

COURSE CODE/ COURSE NAME			DBM2033 DISCRETE MATHEMATICS		
COURSEWORK ASSESSMENT			QUIZ 4		
SESSION			DECEMBER 2017		
NAME	Johnathan Lee	DURATION	20 MINS	CLO1	10 MARKS
REGISTRATION NO.	05DDT17F1017			CLO2	
PROGRAMME/ SECTION	DDT2B			CLO3	
				TOTAL MARKS	10 MARKS

Instructions

- Answer ALL questions. Write your answers in the spaces provided.
- Show your working to get marks. You may use a non-programmable scientific calculator.

Question 1 (CLO1, C2)

Among the seven nominees for two vacancies on the city council are three men and four women. In how many ways may these vacancies be filled?

(a) With any two of the nominees?

[2 marks]

$\frac{7!}{2!(7-2)!} = \frac{7!}{2!5!}$ $7C_2 = 21$

$= 21$

(b) With one of the men and one of the women?

[3 marks]

$4C_1 \times 3C_1 = 12$

$\frac{4!}{4!(4-1)!} = \frac{4!}{4!3!} = 6$ $\frac{3!}{3!(3-1)!} = \frac{3!}{3!2!} = 1$

Question 2 (CLO1, C2)

(a) A group of 45 people are going to run a race. The top three runners earn gold, silver and bronze medals. Find the number of possibilities.

[2 marks]

$\frac{45!}{(45-42)!} = \frac{45!}{42!} = 85140$

(b) A serial number consists of a vowel (A, E, I, O, U) followed by two non-zero digits (0-9). For example, "A13". Determine how many serial numbers are possible given that letters and digits cannot be repeated in the same serial number.

[3 marks]

$5 \times 9 \times 8 = 360$

1 vowel

1 non zero digit

Cannot be repeated