KEMENTERIAN PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA **JABATAN MATEMATIK, SAINS DAN KOMPUTER**		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
NAME		DURATION	60 MINS	CLO1	
REGISTRATION NO.				CLO2	
				CLO3	20 MARKS
PROGRAMME/ SECTION		TOTAL MARKS		20 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, C3 [4 marks]

P	E	N	C	I	L	S

The diagram shows seven letter cards. A four-letter code is to be formed using four of these cards. Find

(a) The number of different four-letter codes that can be formed.
$^{7}P_{4} = 840$

(b) The number of four-letter codes that begin with a consonant.
$5 \times {}^{6}P_{3} = 600$

Question 2

CLO1, C3 [4 marks]

A group of students are to be chosen for a students' exchange program. These 5 students are chosen from 5 monitors, 3 assistant monitors and 4 perfects. Find the number of ways of performing the team if

(a) There is no restriction.
$^{12}C_{5} = 792$

(b) The team consists of only 1 monitor and exactly 3 perfects.
$^{5}C_{1} \times {}^{3}C_{1} \times {}^{4}C_{3} = 60$

Question 3

CLO1, C2 [2 marks]

Six students of the editorial board of a school magazine are to be arranged in a row to have their photograph taken. Find the number of ways they can arranged.
$6! = 720$

Question 4

CLO1, C3 [5 marks]

A six-member committee of the PTA of SMK Dato Alan is to be elected from the principal, 5 teachers and 6 parents. Find the number of different committees that can be formed with the condition that

(a) The principal must be elected.

$^{1}C_{1} \times {}^{11}C_{5} = 462$

(b) The committee is to consist of the principal, two teachers and three parents.

$^{1}C_{1} \times {}^{5}C_{2} \times {}^{6}C_{3} = 200$

(c) At least one parent must be elected.

Total number of committee – number of committees without parents

$= {}^{12}C_{6} - {}^{6}C_{6} = 923$