KEMENTERIAN PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA **JABATAN MATEMATIK, SAINS DAN KOMPUTER**		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT	
		SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	
NAME				CLO2	
REGISTRATION NO.				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]

The diagram shows five cards of different letters.

(a) Find the number of possible arrangements, in a row, of all the cards.
(b) Find the number of these arrangements with the letter E and A side by side.

(a) Number of possible arrangements = $^5P_5 = 120$.
(b) Number of arrangements = $^4P_4 \times {}^2P_2 = 48$

Question 2

CLO1, C3 [4 marks]

A debating team consists of 7 students. The team will be chosen from a group of 9 boys and 6 girls. Find the number of teams that can be formed such that each team consists of

(a) 4 girls
(b) Not more than 3 boys

(a) Number of teams that can be formed = $^6C_4 \times {}^9C_3 = 1260$
(b) Number of teams that can be formed = $^9C_1 \times {}^6C_6 + {}^9C_2 \times {}^6C_5 + {}^9C_3 \times {}^6C_4 = 1485$

Question 3

CLO1, C2 [2 marks]

Find the number of four-digit numbers greater than 4000 which can be formed from the digits 2, 4, 6 and 9.

The number of four-digit numbers greater than 4000 that can be formed = $^3P_1 \times {}^3P_3 = 18$

Question 4

CLO1, C3 [5 marks]

An examination question paper has four questions in Section A and three questions in Section B. A student has to answer five questions from the paper. Find the number of ways of selecting the questions if the student

(a) Can answer any five questions from Section A and B.
(b) Must answer three questions from Section A and two questions from Section B.

(a) Number of ways answering 5 questions from 7 questions = ${}^{7}C_{5} = 21$
(b) Number of ways answering 3 questions from Section A and 2 questions from Section B = ${}^{4}C_{3} \times {}^{3}C_{2} = 12$