KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	
				CLO2	
				CLO3	20 MARKS
NAME	NUR ATHIRAH SYAHIDA BINTI KHALIK	TOTAL MARKS		20 MARKS	
REGISTRATION NO.	050DT18F1110				
PROGRAMME/ SECTION	DDT3B				

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 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.
(b) The number of four-letter codes that begin with a consonant.

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.
(b) The team consists of only 1 monitor and exactly 3 perfects.

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.

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.
(b) The committee is to consist of the principal, two teachers and three parents.
(c) At least one parent must be elected.

No.

Date :

Question 1

a) ${}^{7}P_{7} = 5040$

b) ~~[illegible]~~ ${}^{7}P_{1} \times {}^{3}P_{3} = 42$

Question 2

a)

monitors	assistant monitor	perfect
5	0	0
4	1	0
3	1	1
2	2	1
1	3	1

${}^{5}C_{5} = 1$

${}^{5}C_{4} \times {}^{3}C_{1} \times {}^{4}C_{0} = 15$

${}^{5}C_{3} \times {}^{3}C_{1} \times {}^{4}C_{1} = 120$

${}^{5}C_{2} \times {}^{3}C_{2} \times {}^{4}C_{1} = 120$

${}^{5}C_{1} \times {}^{3}C_{3} \times {}^{4}C_{1} = 20$

total $= 276$

b)

Question 3

$6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1$

$= 240$

*enlivo

No.

Date :

Question 4

a) teacher 5

parents 6

pricipal 6

teacher	parent
5	1
4	2
3	3
2	4
1	5

$^5C_5 \times {}^6C_1 = 6$

$^5C_4 \times {}^6C_2 = 75$

$^5C_3 \times {}^6C_3 = 200$

$^5C_2 \times {}^6C_4 = 150$

$^5C_1 \times {}^6C_5 = 30$

$^5C_0 \times {}^6C_6 = 1$

Total $= 462$

$^1C_1 \times {}^5C_4 \times {}^6C_1 = 30$

$^1C_1 \times {}^5C_3 \times {}^6C_2 = 150$

$^1C_1 \times {}^5C_2 \times {}^6C_3 = 200$

$^1C_1 \times {}^5C_1 \times {}^6C_4 = 75$

$^1C_1 \times {}^5C_0 \times {}^6C_5 = 6$

Total $= 461$

462

b) $^1C_1 \times {}^5C_2 \times {}^6C_3 = 200$

2

c) $^5C_5 \times {}^6C_1 = 6$

X

*enlivo

KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
JABATAN MATEMATIK, SAINS DAN KOMPUTER		DURATION	60 MINS	CLO1	
NAME	AHMAD FAUZI BIN SAREE			CLO2	
REGISTRATION NO.	050DT18F1005			CLO3	20 MARKS
PROGRAMME/ SECTION	DDT2B	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 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.
(b) The number of four-letter codes that begin with a consonant.

Question 2

CLO1, C3 [4 marks]

consonant
$_5P_1 \times {}^3P_3$

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.
(b) The team consists of only 1 monitor and exactly 3 perfects.

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.

$^nP_n \cdot {}^6P_6 = 6!$
$= 720$

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.
(b) The committee is to consist of the principal, two teachers and three parents.
(c) At least one parent must be elected.

Subject: AHMAD FAUZI

No:

Date:

Question 1

a) $\cancel{{}^{7}A_{7}} = 80$

b) $\cancel{{}^{7}C_{5} = 21}$

$\underbrace{1}_{\text{Consonant}} \quad \cancel{{}^{3}P_{3}} = 6$

$\cancel{{}^{1}P_{1} \times {}^{3}P_{3}}$

(P, H, C, L, S)

${}^{5}P_{1} \times {}^{3}P_{3} = 30$

Question 2

a) ${}^{5}P_{5} \times {}^{5}P_{3} \times {}^{5}P_{4}$

$= \cancel{50}\ 864\ 000$

b) ${}^{5}C_{1} \times {}^{5}C_{3}$

$= 50$

Question 3

6 student

${}^{n}P_{n} = {}^{6}P_{6}$

$= 6!$

$= 720$

Question 4

a) ${}^{6}P_{1} = 6$

b) $\cancel{{}^{6}P_{1} \times {}^{5}P_{2} \times {}^{6}P_{3}}$ ${}^{6}C_{1} \times {}^{5}C_{2} \times {}^{6}C_{3}$

$\cancel{= 14\ 400}$ $= 1200$

c) $\cancel{6 \times {}^{6}C_{1}}$

$\cancel{= 36}$

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Subject:..... No:.....

Date:

c) ${}^6P_6 = 720$

${}^6P_5 =$

${}^6P_4 =$

${}^6P_3 =$

${}^6P_2 =$

${}^6P_1 =$

c) ${}^6C_6 = 1$

${}^6C_5 = 6$

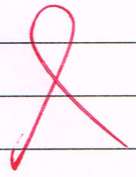
${}^6C_4 = 15$

${}^6C_3 = 20$

${}^6C_2 = 15$

${}^6C_1 = 6$

63



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KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
JABATAN MATEMATIK, SAINS DAN KOMPUTER		DURATION	60 MINS	CLO1	
NAME	Alexander Hee Hee Chen F4			CLO2	
REGISTRATION NO.	05DDT18F1038			CLO3	20 MARKS
PROGRAMME/ SECTION	DDT2B	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.
(b) The number of four-letter codes that begin with a consonant.

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.
(b) The team consists of only 1 monitor and exactly 3 perfects.

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.

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.
(b) The committee is to consist of the principal, two teachers and three parents.
(c) At least one parent must be elected.

Subject:..... No:..... Date:

3

1a. $^7P_4$

$= \frac{7!}{4!}$

$= 210$

b. $^5P_1 \times 2$

$= 120 \times 2$

$= 240$

2a. 5 students

5 monitors, 3 a-monitors, 4 perfects

monitors	a-monitors	perfects	
$^5C_5$	$^3C_0$	$^4C_0$	$^5C_5 \times {}^3C_0 \times {}^4C_0 = 1$
$^5C_4$	$^3C_1$	$^4C_0$	$^5C_4 \times {}^3C_1 \times {}^4C_0 = 15$
$^5C_3$	$^3C_2$	$^4C_0$	$^5C_3 \times {}^3C_2 \times {}^4C_0 = 30$
$^5C_2$	$^3C_3$	$^4C_0$	$^5C_2 \times {}^3C_3 \times {}^4C_0 = 10$
$^5C_1$	$^3C_3$	$^4C_1$	$^5C_1 \times {}^3C_3 \times {}^4C_1 = 20$
$^5C_0$	$^3C_3$	$^4C_2$	$^5C_0 \times {}^3C_3 \times {}^4C_2 = 6$
$^5C_0$	$^3C_2$	$^4C_3$	$^5C_0 \times {}^3C_2 \times {}^4C_3 = 12$
$^5C_0$	$^3C_1$	$^4C_4$	$^5C_0 \times {}^3C_1 \times {}^4C_4 = 3$

97 ways

b. $^5C_1 \times {}^3C_0 \times {}^4C_3$

$= 20$ ~~ways~~

3a. $^6C_1 = 6$

$^6C_2 = 15$

$^6C_3 = 20$

$^6C_4 = 15$

$^6C_5 = 6$

$^6C_6 = 1$

63 ways

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Subject:..... No:.....

Date:

4. 6-members 1 Principle.
5 teachers & 6 parents

a.

Principle	teachers	parents	
$^1C_1$	$^5C_5$	$^6C_0$	$^1C_1 \times {}^5C_5 \times {}^6C_0 = 1$
$^1C_1$	$^5C_4$	$^6C_1$	$^1C_1 \times {}^5C_4 \times {}^6C_1 = 30$
$^1C_1$	$^5C_3$	$^6C_2$	$^1C_1 \times {}^5C_3 \times {}^6C_2 = 150$
$^1C_1$	$^5C_2$	$^6C_3$	$^1C_1 \times {}^5C_2 \times {}^6C_3 = 200$
$^1C_1$	$^5C_1$	$^6C_4$	$^1C_1 \times {}^5C_1 \times {}^6C_4 = 75$
$^1C_1$	$^5C_0$	$^6C_5$	$^1C_1 \times {}^5C_0 \times {}^6C_5 = 6$

462 different

(1)

b. $^1C_1 \times {}^5C_2 \times {}^6C_3$
$= 200$

(2)

c. ~~$^1C_1 \times$~~

Principal	teachers	parents	
$^1C_1$	$^5C_4$	$^6C_1$	$^1C_1 \times {}^5C_4 \times {}^6C_1 = 30$
$^1C_1$	$^5C_5$	$^6C_0$	$^1C_1 \times {}^5C_5 \times {}^6C_0 = 1$

31 different

X

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1146 = 8%

KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
JABATAN MATEMATIK, SAINS DAN KOMPUTER		DURATION	60 MINS	CLO1	
NAME	Safrina Binti Bohel.			CLO2	
REGISTRATION NO.	08DDT18F1014.			CLO3	20 MARKS
PROGRAMME/ SECTION	DTML 1 DPT2B	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.
(b) The number of four-letter codes that begin with a consonant.

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.
(b) The team consists of only 1 monitor and exactly 3 perfects.

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.

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.
(b) The committee is to consist of the principal, two teachers and three parents.
(c) At least one parent must be elected.

No. :

Date :

6

Question 1.

a) $^7P_7 = 7!$
$= 5040$ ✗

b) $4 \times {}^3P_3 = 24$ ✗

Question 2

a)

5 - monitor
3 - assistant monitor
4 - perfect.
5 student chosen

(5) monitor	(5)(3) assistant monitor	(4) perfect	
5	0	0	=
4	1	0	
3	2	0	
2	3	0	
1	0	4	

$= {}^5C_5 = 1$
$= {}^5C_4 \times {}^3C_1 = 15$
$= {}^5C_3 \times {}^3C_2 = 30$
$= {}^5C_2 \times {}^3C_3 = 10$
$= {}^5C_1 \times {}^4C_4 = 5$

$= 61$ ✗

b)

monitor	assistant monitor	perfect
1	1	3

$= {}^5C_1 \times {}^3C_1 \times {}^4C_3 = 60$ ✓

2

No. :

Date :

Question 3.

${}^6P_6 = 6! = 720$ ✓

2

Question 4

a) ${}^1C_1 \times {}^5C_5 = 1$ ✗

b) ${}^1C_1 \times {}^5C_2 \times {}^6C_3 = 200$ ✗

2

c) ~~${}^5C_5 \times {}^6C_1 \times$~~

${}^6C_6 = 1$

${}^5C_1 \times {}^6C_5 = 30$

${}^5C_2 \times {}^6C_4 = 150$

${}^5C_3 \times {}^6C_3 = 200$

= 381 ✗

KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
JABATAN MATEMATIK, SAINS DAN KOMPUTER		DURATION	60 MINS	CLO1	
NAME	Grace Gman			CLO2	
REGISTRATION NO.	050DT18F1009			CLO3	20 MARKS
PROGRAMME/ SECTION	DDT2 B.	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 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.

(b) The number of four-letter codes that begin with a consonant.

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.

(b) The team consists of only 1 monitor and exactly 3 perfects.

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.

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.

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

(c) At least one parent must be elected.

No.: Date: 13/3/19

6

Question 1

a) ~~$^{7}P_{4} = 210$ ways~~ $^{7}P_{4} = 840$ ways ✓ (2)

b) $5 \times {}^{2}P_{2} = 10$

$^{1}P_{1} \times 5 \times {}^{1}P_{1} = 5$

$^{2}P_{2} \times 5 = 10$

$10 + 5 + 10 = 25$ ways ✗

Question 2

a) $5 + 3 + 4 = 12$

$^{12}C_{5} = 792$ ✓ (2)

b) $^{5}P_{1} \times {}^{4}P_{3} = 5 \times 24$

$= 120$ ~~ways~~ ✗

Question 3

$^{8}P_{6} \; {}^{6}P_{6} = 720$ ways ✓ (2)

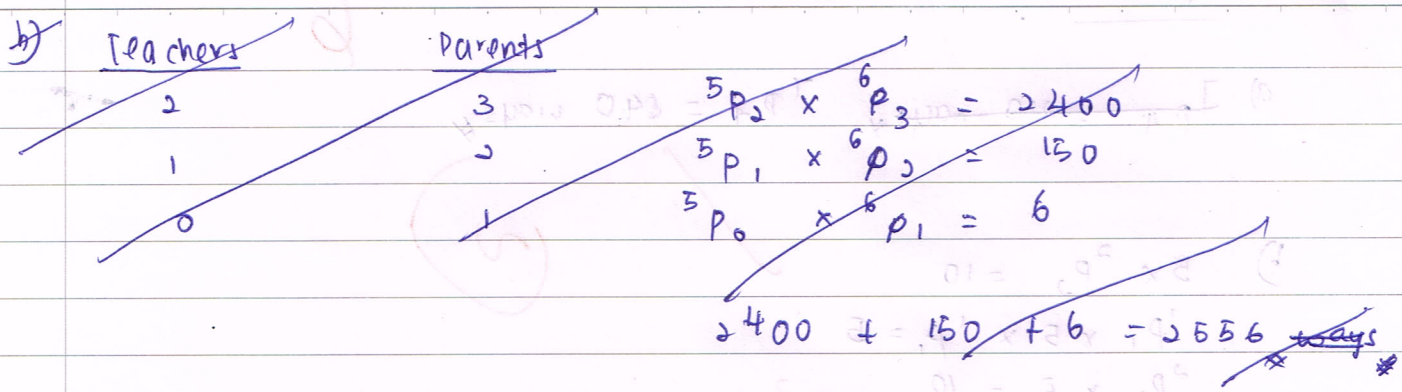
Question 4

a) $6 + 5 + 6 = 17$ ✗

$^{17}C_{6} = 12376$

No.: Date:

b)



b) $^6P_1 \times {}^5P_2 \times {}^6P_3 =$ ~~$6 \times 120 \times 1$~~ $6 \times 20 \times 120$

$= 14400$

c)

Teachers	Parents	Principle
1	1	1
2	2	
3	3	
4	4	
5	5	
	~~6~~	

$^5P_1 \times {}^6P_1 \times {}^6P_1 = 180$

$^5P_2 \times {}^6P_2 = 600$

$^5P_3 \times {}^6P_3 = 7200$

$^5P_4 \times {}^6P_4 = 43200$

$^5P_5 \times {}^6P_5 =$

13+6=9½

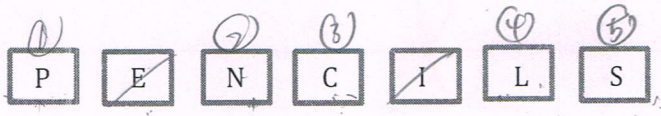
KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	
				CLO2	
				CLO3	20 MARKS
NAME	Ameilia Jocelyn	TOTAL MARKS		20 MARKS	
REGISTRATION NO.	059D11F3040				
PROGRAMME/ SECTION	DD13B/S3				

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 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. $^7P_4$

(b) The number of four-letter codes that begin with a consonant.

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. $5 \times 3 \times 4$

(b) The team consists of only 1 monitor and exactly 3 perfects.

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.

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

(c) At least one parent must be elected.

O.: Date: 6

Question 1.

(a) ~~4! = 4 x 3 x 2 x 1~~ $^7P_4 = 840$

~~= 24~~

(b) ~~P~~ E N C I L S $1 \times {}^6P_3 = 120$

~~P~~ E ~~N~~ C I L S $2 \times {}^5P_2 = 40$

~~P~~ E ~~N~~ ~~C~~ I L S $3 \times {}^4P_1 = 12$

~~P~~ E ~~N~~ ~~C~~ I ~~L~~ S $4 \times {}^3P_0 = 4$

Total = 176

Question 2.

(a) $5 \times 3 \times 4 = 60$ ways

(b) $^5C_1 \times {}^4C_3 \times {}^3C_0 = 5 \times 4 \times 0$

~~= 20 ways~~ $= 20$

Question 3.

$6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1$

$= 720$ ways

Question 4.

(a)

Principle	Teachers	Parent	
1	5	0	$^1C_1 \times {}^5C_5 \times {}^6C_0 = 1$
1	4	1	$^1C_1 \times {}^5C_4 \times {}^6C_1 = 30$
1	3	2	$^1C_1 \times {}^5C_3 \times {}^6C_2 = 150$
1	2	3	$^1C_1 \times {}^5C_2 \times {}^6C_3 = 200$
1	1	4	$^1C_1 \times {}^5C_1 \times {}^6C_4 = 75$
1	0	5	$^1C_1 \times {}^5C_0 \times {}^6C_5 = 6$
1	0		

Total : 463 commitees

NO.: Date:

(b) ${}^{1}C_{1} \times {}^{5}C_{2} \times {}^{6}C_{3} = 1 \times 10 \times 20$

$= 200$ committees ✓ (2)

(c)

Principle	Teacher	Parent	
1	4	1	${}^{1}C_{1} \times {}^{5}C_{4} \times {}^{6}C_{1} = 30$
0	5	1	${}^{1}C_{0} \times {}^{5}C_{5} \times {}^{6}C_{1} = 6$

Total = ~~36~~ committees. ✗

15 x 13 = 14

KEMENTERIA PENDIDIKAN MALAYSIA — POLITEKNIK MALAYSIA		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)
		SESSION		DECEMBER 2018
JABATAN MATEMATIK, SAINS DAN KOMPUTER		DURATION	60 MINS	CLO1 / CLO2 / CLO3 — 20 MARKS
NAME	ALLYSHA BINT JEFFREY			
REGISTRATION NO.	05DDT18F1011			
PROGRAMME/ SECTION	DDT 2B	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

AEIOU

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.

(b) The number of four-letter codes that begin with a consonant. = P, N, C, L, S

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.

(b) The team consists of only 1 monitor and exactly 3 perfects.

$5C_5 = 1$

$5C_3 = 10$

$5C_4 = 5$

Question 3

CLO1, C2 [2 marks] = 16

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.

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.

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

(c) At least one parent must be elected.

Subject:..... No:.....

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13

Question 1

(a) $^{7}P_{4}$

$= 840$ ✓ (4)

(b) $^{5}P_{1} \times {}^{6}P_{3}$ $= 5 \times 120$

$= 600$

Question 2

(a) $5 + 3 + 4 = 12$

5 students $= {}^{12}C_{5}$ $= 792$ ways ✓ (4)

(b)

M	Am	P
1	1	3

$= {}^{5}C_{1} \times {}^{3}C_{1} \times {}^{4}C_{3} = 60$ ways

Question 3

$^{6}P_{6} = 720$ ✓ (2)

Question 4

(a)

Principal	teachers	parents	
1	5	0	$^{1}C_{1} \times {}^{5}C_{5} \times {}^{6}C_{0} = 1$
1	4	1	$^{1}C_{1} \times {}^{5}C_{4} \times {}^{6}C_{1} = 30$
1	3	2	$^{1}C_{1} \times {}^{5}C_{3} \times {}^{6}C_{2} = 150$
1	2	3	$^{1}C_{1} \times {}^{5}C_{2} \times {}^{6}C_{3} = 200$
1	1	4	$^{1}C_{1} \times {}^{5}C_{1} \times {}^{6}C_{4} = 75$
1	0	5	$^{1}C_{1} \times {}^{5}C_{0} \times {}^{6}C_{5} = 6$

$= 462$ ✓ (2) (1)

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(b)

Principal	teacher	parents	$= {}^{1}C_{1} \times {}^{5}C_{2} + {}^{6}C_{3}$
1	2	3	$= 200$

(c)

Principal	teacher	parents
1	4	
	3	
	2	
	1	
	0	

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KEMENTERIA PENDIDIKAN MALAYSIA / POLITEKNIK MALAYSIA JABATAN MATEMATIK, SAINS DAN KOMPUTER		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
NAME	Chai Siaw Hung	DURATION	60 MINS	CLO1	
REGISTRATION NO.	050071BF1065			CLO2	
PROGRAMME/ SECTION	JTMK / DDT2B	TOTAL MARKS		CLO3	20 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 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.

(b) The number of four-letter codes that begin with a consonant.

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.

(b) The team consists of only 1 monitor and exactly 3 perfects.

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.

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.

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

(c) At least one parent must be elected.

Subject:

No:

Date: 13/3/2019

Question 1:

(a) $\frac{7!}{(7-4)!} = \frac{7!}{3!} = 840$ ways

(b) ${}^{5}P_1 \times {}^{6}P_3 = 600$ ways

4

P.N.C.L.S.

${}^{5}P_1$ ${}^{6}P_3$

Question 2:

(a) ${}^{12}C_5 = 792$ ways

(b) ${}^{5}C_1 \times {}^{4}C_3 \times {}^{3}C_1 = 60$ ways

4

Question 3:

${}^{6}P_6 = 720$ ways

Question 4:

(a) ${}^{1}C_1 \times {}^{11}C_5 = 462$ ways

(b) ${}^{1}C_1 \times {}^{5}C_2 \times {}^{6}C_3 = 200$ ways

(c) ${}^{6}C_5 \times {}^{6}C_1 = 36$ ways

${}^{6}C_4 \times {}^{6}C_2 = 225$ ways

${}^{6}C_3 \times {}^{6}C_3 = 400$ ways

${}^{6}C_2 \times {}^{6}C_4 = 225$ ways

${}^{6}C_1 \times {}^{6}C_5 = 36$ ways

${}^{6}C_0 \times {}^{6}C_6 = 1$ ways

total ways = 923 ways

5

1 principle

(5+6) teacher + parents.

${}^{1}C_1 \times {}^{11}C_5$

principle + teachers		parent	
5	${}^{6}C_5$	1	${}^{6}C_1$
4	${}^{6}C_4$	2	${}^{6}C_2$
3	${}^{6}C_3$	3	${}^{6}C_3$
2	${}^{6}C_2$	4	${}^{6}C_4$
1	${}^{6}C_1$	5	${}^{6}C_5$
0	${}^{6}C_0$	6	${}^{6}C_6$

principle → teacher

5

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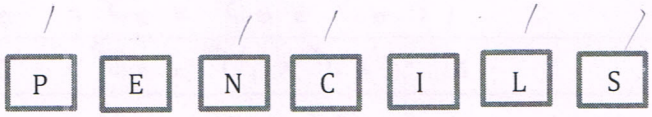
KEMENTERIA PENDIDIKAN MALAYSIA / POLITEKNIK MALAYSIA		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		ASSIGNMENT (B)	
		SESSION		DECEMBER 2018	
JABATAN MATEMATIK, SAINS DAN KOMPUTER		DURATION	60 MINS	CLO1	
NAME	ALVIN HAWKINS AK MENTRI			CLO2	
REGISTRATION NO.	05DDT18F1040			CLO3	20 MARKS
PROGRAMME/ SECTION	DDT2B	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 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.

(b) The number of four-letter codes that begin with a consonant.

Question 2

CLO1, C3 [4 marks]

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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.

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.

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

(c) At least one parent must be elected.

Subject : No : 11 Date : / /

Question 1

a. ${}^7P_4 = 840$ #

${}^5P_1 \times {}^6P_3 = 600$ ~~${}^5P_1 \times {}^6P_3$~~

Question 2

	M	AM	P	
a.	5	3	4	
	5	0	0	$= {}^5C_5 \times {}^3C_0 \times {}^4C_0 = 1$
	4	1	0	$= {}^5C_4 \times {}^3C_1 \times {}^4C_0 = 15$
	3	2	0	$= {}^5C_3 \times {}^3C_2 \times {}^4C_0 = 30$
	2	3	0	$= {}^5C_2 \times {}^3C_3 \times {}^4C_0 = 10$
	1	3	1	$= {}^5C_1 \times {}^3C_3 \times {}^4C_1 = 20$
	0	3	2	$= {}^5C_0 \times {}^3C_3 \times {}^4C_2 = 6$
	0	2	3	$= {}^5C_0 \times {}^3C_2 \times {}^4C_3 = 12$
	0	1	4	$= {}^5C_0 \times {}^3C_1 \times {}^4C_4 = 3$

$1+15+30+10+20+6+12+3 = 97$ #

b. ${}^5C_1 \times {}^3C_1 \times {}^4C_3 = 60$

Question 3

${}^6P_6 = 6! = 720$ #

Question 4.

a	Principal	Teachers	Parents	
	1	5	0	$= {}^1C_1 \times {}^5C_5 \times {}^6C_0 = 1$
	1	4	1	${}^1C_1 \times {}^5C_4 \times {}^6C_1 = 30$
	1	3	2	${}^1C_1 \times {}^5C_3 \times {}^6C_2 = 150$
	1	2	3	${}^1C_1 \times {}^5C_2 \times {}^6C_3 = 200$
	1	1	4	${}^1C_1 \times {}^5C_1 \times {}^6C_4 = 75$
	1	0	5	${}^1C_1 \times {}^5C_0 \times {}^6C_5 = 6$
		$1+30+150+200+75+6 = 462$ #		

Subject : No : Date : / /

b. Principal Teacher Parents
1 2 3

$= {}^{1}C_1 \times {}^{5}C_2 \times {}^{6}C_3 = 200$ # /2

c.

Principal	Teacher	Parent	
1	4	1	$= {}^{1}C_1 \times {}^{5}C_4 \times {}^{6}C_1 = 30$
1	3	2	$= {}^{1}C_1 \times {}^{5}C_3 \times {}^{6}C_2 = 150$
1	2	3	$= {}^{1}C_1 \times {}^{5}C_2 \times {}^{6}C_3 = 200$
1	1	4	$= {}^{1}C_1 \times {}^{5}C_1 \times {}^{6}C_4 = 75$
1	0	5	$= {}^{1}C_1 \times {}^{5}C_0 \times {}^{6}C_5 = 6$
0	0	6	$= {}^{1}C_0 \times {}^{5}C_0 \times {}^{6}C_6 = 1$
0	5	1	$= {}^{1}C_0 \times {}^{5}C_5 \times {}^{6}C_1 = 6$
0	4	2	$= {}^{1}C_0 \times {}^{5}C_4 \times {}^{6}C_2 = 75$
0	3	3	$= {}^{1}C_0 \times {}^{5}C_3 \times {}^{6}C_3 = 200$
0	2	4	$= {}^{1}C_0 \times {}^{5}C_2 \times {}^{6}C_4 = 150$
0	1	5	$= {}^{1}C_0 \times {}^{5}C_1 \times {}^{6}C_5 = 30$

$30+150+200+75+6+1+6+75+200+150+30$

$= 923$ #