Permutations and combinations – 2022 Nov IGCSE 0606 Additional Math

1. Nov/2022/Paper_0606_11/No.10

Given that $65 \times {}^{n}C_{5} = 2(n-1) \times {}^{n+1}C_{6}$, find the value of n. [3]

2. Nov/2022/Paper_0606_12/No.6

A group of 15 people includes 3 brothers. A team of 6 people is to be chosen from this group. The three brothers must not be separated. Find the number of possible teams that can be chosen. [3]

3. Nov/2022/Paper_0606_13/No.9

A 6-character password is to be formed from the following characters.

Letters	A	B	C	D
Numbers	1	2	3	4
Symbols	*	#	$	£

No character may be used more than once in any password.

(a) **(i)** Find the number of different 6-character passwords that can be formed. [1]

(ii) How many of these 6-character passwords end with a symbol? [1]

(b) Find the number of different 6-character passwords that include all the symbols, but do not start or end with a symbol. [2]

4. Nov/2022/Paper_0606_21/No.11

A 5-digit code is to be formed using 5 different numbers selected from 1, 2, 3, 4, 5, 6, 7, 8. Find how many possible codes there are if the code forms

(a) a number less than 60 000 that ends in a multiple of 3, [3]

(b) an even number less than 60 000. [3]

5. Nov/2022/Paper_0606_22/No.6

A 4-digit code is to be formed using 4 different numbers selected from 2, 3, 4, 5, 6, 7, 8 and 9. Find how many possible codes there are if the code forms

(a) a number that is odd and greater than 5000, [3]

(b) a number greater than 5000 with a last digit that is prime. [3]

6. Nov/2022/Paper_0606_23/No.7

Given that ${}^nC_4 = 13 \times {}^nC_2$, find the value of ${}^nC_8$. [5]