- I ALYA BALRISS BINTI ABAHAR
- 4. KEE SHIN PEARL
- 3. ALYA DAMIA BINTI HUZAIMY

### Question 1

Suppose we have an experiment that consists of flipping a coin 5 times.

- Find the total number for the outcomes for this experiment?
- List all the elements in the sample space?
- iii. Find the probability that tails will be occurring at least 2 times on five coin flips?
- Find the probability of getting all Head and all Tail on five coin flips?
- 1) i) 2x2x2x2x2
  - = 25
  - \* 32 outcomes
  - ii) Let 5 be the sample space

S = 1 NHHHH, NHHHT, HHTT, HHTTT, HTTTT, TTTTT TTTTH, TTTHH, TTHHH, THHHH, HTHTH, THTHT, HATHM, TTHTT, HTTHT, THATH, THAHT, HTTTH, THATT, HTTHH, HATTH, TTHHT, TTHTH, HATHT, HTHTT, THTHH, THTTH, HTHHT, HTHTT, THTHH, HHHTH, TTTHT }

iii) Let A be the event that tails will be occuring at least 2 times A = { HANTE, HATTE, HTTTT, TTTTT, TTTTH, TTTHH, TTHHH, HTHTH, THTHT, TTHTT, HTTHT, THHTH, THHHT, HTTTH, THHTT, HTTHH, HHTTH, TTHHT, TTHTH, HHTHT, HTHTT THTHH, THTTH, HTHHT, HTHTT, THTHH, TTTHT }

iv) Let B be the event of getting all heads and all tails

$$P(B) = \frac{2}{32} = \frac{1}{16}$$

# Question 2

A bag has 10 blue balls and 5 red balls. 2 balls are to be drawn successively and without replacement. What is the probability that the first ball is red and the second is blue?

blu	e	=	10	Lel	A	be	the	Ev	ent	tha	<del>It 1</del>	the	firs	t b	all	2 i	red	anc	1 1	he	292	nd	ba	11	is 1	blue	
re	d	=	5		P(	A)	>	<b>5</b> )	<b>k</b> J	0																	
tol	41	=	15					15		14																	
							= 1	5	=	6 - 3	38	R															
							-																				

# Question 3

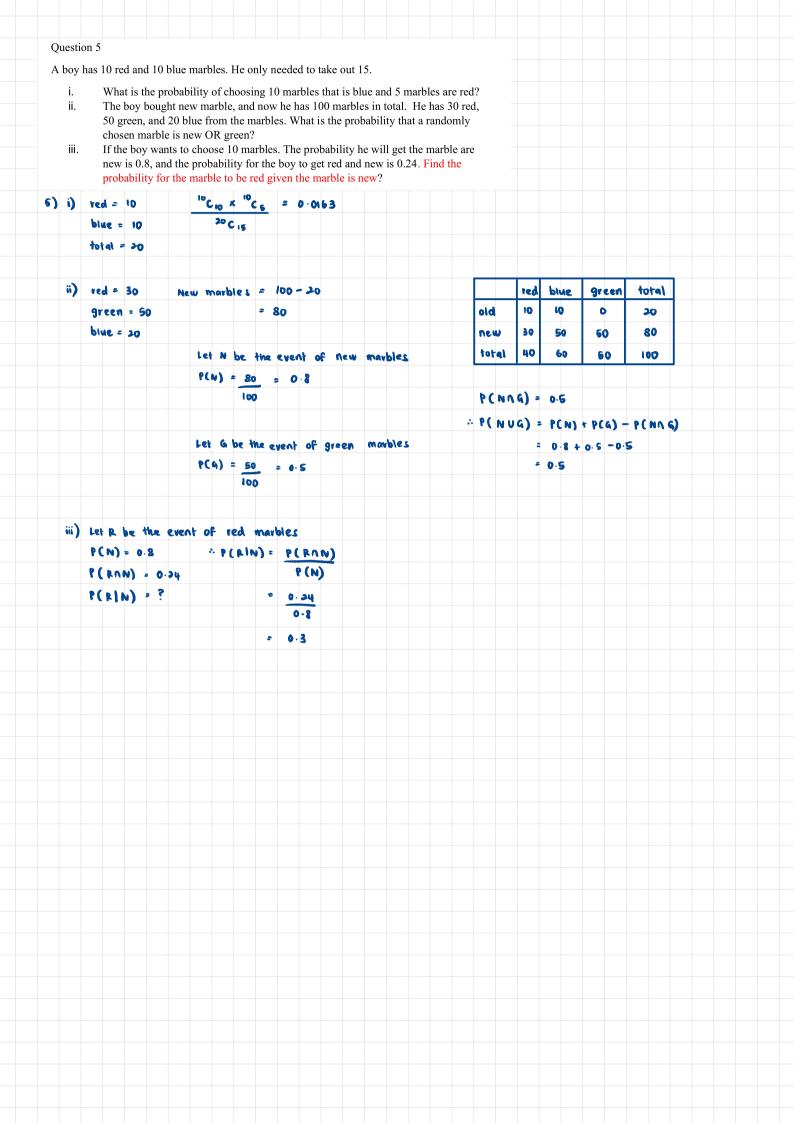
Two coins are loaded so that each comes up heads 80% of the time when tossed. If the coins are both tossed simultaneously,

- i. What probability will the result be both are Tail?
- ii. What probability will the result give Head and Tail?

# Question 4

A UTM received 1000 applications for the undergraduate program every semester. Of all applicants, 150 had a CGPA score above 3.70. 520 applicants had a CGPA score between 3.50 and 3.70. 100 applicants had a score between 3.00 and 3.50. All other applicants had a score lower than 3.00.

- i. What probability will a randomly selected applicant have a score lower than 3.00?
- ii. If this semester, the total of students who get the CGPA score lower than 3.00 is 20% of the total student received, and the number of the other students who get CGPA above 3.50 is the same. Find the number of students who get CGPA between 3.00 and 3.50?



#### Ouestion 6 Ali is a Software Engineering student taking Discrete Structure this semester. The tables below show the percentage of his result from Quiz, Assignment, Test 1 and Final Exam and Final Exam Quiz Assignment Test 1 % Mark for the activity 10 35 15 40 % Time spend on study 20 40 60 70

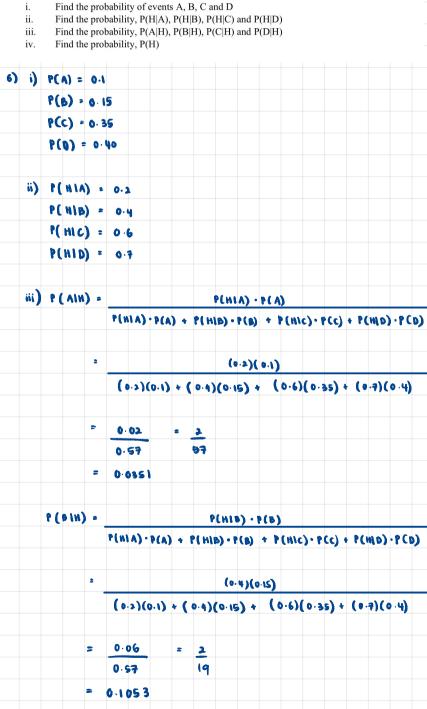
Let A denote the event "the mark for the Quiz".

Let B denote the event "the mark for the Assignment".

Let C denote the event "the mark for the Test 1".

Let D denote the event "the mark for the Final Exam".

Let H denote the event "time Ali spent"



```
P ( C | H ) =
               P(HIC) · P(C)
            P(HIA) · P(A) + P(HIB) · P(B) + P(HIC) · P(C) + P(HID) · P(D)
                   (0.6)(0.35)
            (0.2)(0.1) + (0.4)(0.15) + (0.6)(0.35) + (0.7)(0.4)
          = 0.31 = 7
          = 0.3684
   P(01H) = P(HIB) - P(O)
            P(HIA) - P(A) + P(HIB) - P(B) + P(HIC) - P(C) + P(HID) - P(D)
             (0.7)(0.4)
             (0.2)(0.1) + (0.4)(0.15) + (0.6)(0.35) + (0.7)(0.4)
         = 0.58
            0.57
         = 0.4912
iv)
      P(H) = P(H|A) \cdot P(A) + P(H|B) \cdot P(B) + P(H|C) \cdot P(C) + P(H|D) \cdot P(D)
            = (0.2)(0.1) + (0.4)(0.15) + (0.6)(0.35) + (0.7)(0.47)
            = 0.57
```