Tutorial Class:

ANGLO-CHINESE JUNIOR COLLEGE							
MATHEMATICS DEPARTMENT							
MATHEMATICS Higher 1	8865						
JC2 Learning Checkpoint 1 25 Marks	6 th February 2024 Time allowed: 45 mins						
 John throws a fair die with faces numbered 1 to 6 and observe of the die. Events <i>A</i>, <i>B</i> and <i>C</i> are defined as follows: <i>A</i>: The score is even. <i>B</i>: The score is divisible by 3. <i>C</i>: The score is not more than 2. State with a reason, which pair(s) of the events if any, are (a) mutually exclusive, 	es the number on the top face						
(b) independent.	[1]						

- 2 In a factory, machines A and B produces drinking mugs. Machine A produces 35% of the mugs and machine B produces 65% of the mugs. 3% of the mugs produced by A are faulty.
 6% of the mugs produced by B are faulty.
 - (a) One mug is selected at random. Find the probability that it is faulty. [2]
 - (b) Two mugs are selected at random.
 - (i) Find the probability that exactly one of them is faulty. [2]
 - (ii) Find the probability that exactly one is faulty, given that both were made by A. [2]
- 3 A group of students are asked whether they own a laptop or a tablet. One of the student is chosen at random.
 - *L* is the event that the student owns a laptop.
 - T is the event that the student owns a tablet.

It is given that
$$P(L) = \frac{2}{5}$$
, $P(T) = \frac{2}{3}$ and $P(L \cap T) = \frac{6}{25}$.

(a)	Of the students	who own	a tablet, i	find the	probability	that the	student al	so owns a
	laptop.							[2]

- (b) Find the probability that the student does not own any of these devices. [3]
- (c) Find the probability that the student owns exactly one of these devices. [2]
- 4 A librarian arranges 2 Biology books, 3 Chemistry books and 5 Physics books on a shelf. All the books are different.
 - (a) Find the number of different arrangements if the Biology books are placed next to each other.
 - (b) Given that the books are arranged randomly, find the probability that the Chemistry books are not all next to one another. [3]
 - The librarian selects 4 books from the 10 books and the order of selection is unimportant.
 - (c) Find the number of selections if the librarian selects at least one of the Chemistry books.
 - (d) Given that the librarian selects the books at random, find the probability that at most one of the Chemistry books is selected. [3]

Summary of Areas for Improvement						
Knowledge (K) Careless Mistakes (C)		Read/Interpret Qn wrongly (R)	Presentation (P)			