

[**N.B.** – The figures of the right margin indicate full marks. Read the stems carefully and answer the associated questions. Answer all the questions.]

1. **A box contains 5 green, 8 yellow, and 7 orange marbles. A child takes out three balls at random.**
- (a) What does  $P(A) = 0$  imply?

1
- (b) In how many ways can 3 students be chosen from a class of 20 students?

2
- (c) What is the probability that two marbles are yellow and one green?

3
- (d) Determine the probability that the marbles are the same color.

4
2. **Ratul and Tomal both have an unbiased die. Each has randomly thrown their die once.**
- (a) What are mutually exclusive events?

1
- (b) When is the equation  $P(A \cup B) = P(A) + P(B)$  true? Explain briefly.

2
- (c) From the stem, what is the probability that the sum of numbers appearing on the dice is greater than 8?

3
- (d) Examine the statement: the probabilities of getting the sum less than 6 and greater than 6 are equal.

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