SYLHET CADET COLLEGE
MODEL TEST EXAMINATION - 2025
CLASS: HSC
STATISTICS (CREATIVE)
SECOND PAPER
[According to the Syllabus of 2025]
TIME – 45 minutes
FULL MARKS – 20

Ques Setter	
Moderator	
VP	

Subject Code: | 1 | 3 | 0 |

[**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. **The manager of Future Shopping Center analyzed the usage of card-based payment. He observed that most buyers use either Visa cards (25 %) or Master cards (60 %), or both (15 %). On a certain day, 1000 buyers showed up.**

    (a) What is a comprhensive event? 1
    (b) If A and B are independent events, what about $\bar{A}$ and $\bar{B}$? 2
    (c) Are the events of using Visa cards and Master cards independent? 3
    (d) Analyze the statement: *The probability that no buyer used cards on that day is 0.3.* 4

2. **An urn contains 4 white, 5 black, and 6 red balls. Three (3) balls are drawn at random from the urn. Adnan anticipated all the balls would be same colors, while Saad thought the balls would be different colors.**

    (a) What does it mean when $P(A) = 0$ in probability theory? 1
    (b) Prove using Venn diagram $P(A \cap \bar{B}) = P(A) - P(A \cap B)$ 2
    (c) What is the probability that at least two balls are black? 3
    (d) Whose expectation is more probable? Analyze. 4