Quiz # 5 **Name:** **Class:**

Q.1 A box contains red balls and blue balls. A boy selects two balls without replacement. If the probability of selecting a red ball and a blue ball is 0.18, and the probability of selecting a red ball on the first draw is 0.6, find the probability of selecting the blue ball on the second draw, given that the first ball selected was a red ball.

A.1 R: Selecting a red ball B: Selecting a blue ball

$$P(R \text{ and } B) = 0.18$$
$$P(R) = 0.60$$
$$P(B|R) = \frac{P(R \text{ and } B)}{P(R)} = \frac{0.18}{0.60}$$

Q.2 Find the probability of selecting 3 science books and 4 math books from 8 science books and 9 math books. The book is selected at random.

A.2 P(selecting 3 science and 4 math books)$= \frac{{}_8C_3 \ {}_9C_4}{{}_{17}C_7} = \frac{882}{2431}$.

Q.3 A package contains 12 computers, 3 of which are defective. If 4 are selected, find the probability of getting:
(1) No defective computers (2) 1 defective (3) 3 defective computers.

A.3

1 P(No defective)$= \frac{{}_9C_4}{{}_{12}C_4} = \frac{14}{55}$.

2 P(1 defective)$= \frac{{}_3C_1 \ {}_9C_3}{{}_{12}C_4} = \frac{28}{55}$.

3 P(3 defective)$= \frac{{}_3C_3 \ {}_9C_1}{{}_{12}C_4} = \frac{1}{55}$.

Q.4 A circuit to run a model railroad has 8 switches. Two are defective. If a person selects 2 switches at random and tests them, find the probability that the second one is defective, given that the first one is defective.

A.4 P(2nd defective|1st defective) $= \frac{P(\text{1st and 2nd defective})}{P(\text{1st defective})} = \frac{2}{56} . \frac{8}{2} = \frac{1}{7}$