PROBABILITY

UDAY KUMAR - FWC22086

16.4.2 [1]**Four cards are drawn from a well-shuffled deck of 52 cards. What is the probability of obtaining 3 diamonds and one spade?.**

Solution:
Let the cards drawn from the deck be $X = \{0, 1, 2, 3\}$ and $Y = \{0, 1\}$,where **0** denotes the card is from diamonds and **1** denotes the card is from spades. The desired set of selecting diamonds $\{00, 01, 02\}$ and selecting one spade is $\{13\}$

$$\text{P}(00, 01, 02, 13) = \frac{^{13}C_3 \times {}^{13}C_1}{^{52}C_4}$$

$$\therefore \boxed{\text{P}(00, 01, 02, 13) = \frac{286}{20285}}$$

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[1]Read question numbers as (CHAPTER NUMBER).(EXERCISE NUMBER).(QUESTION NUMBER)