

**Important Questions 2010**  
**Class-XII -Maths**  
**(Probability)**

**Q.1.** Describe the sample space when a coin is tossed four times.

**Q.2.** One die of red colour, one of white colour and one of blue colour are placed in a bag. One die is selected at random and rolled, its colour and the number on its uppermost face is noted. Describe the sample space.

**Q.3.** Three coins are tossed once. Find the probability of getting:

- (i) 3 heads (ii) 2 heads (iii) atleast 2 heads (iv) atmost 2 heads (v) no head (vi) 3 tails  
(vii) exactly two tails (viii) no tail (ix) atmost two tails

**Q.4.** An experiment consists of rolling a die and then tossing a coin once if the number on the die is even. If the number on the die is odd, the coin is tossed twice. Write the sample space for this experiment.

**Q.5.** If E and F are events such that  $P(E) = \frac{1}{4}$ ,  $P(F) = \frac{1}{2}$  and  $P(E \text{ and } F) = \frac{1}{8}$ , Find  $P(\text{not } E \text{ and not } F)$ .

**Q.6.** Find the probability that when a hand of 7 cards is drawn from a well shuffled deck of 52 cards, it contains at least 3 kings.

If A, B, C are three events associated with a random experiment, prove that :  $P(A \cup B \cup C) = P(A) + P(B) + P(C) - P(A \cap B) - P(B \cap C) - P(C \cap A) + P(A \cap B \cap C)$ .

**Q.7.** In a certain lottery 10,000 tickets are sold and ten equal prizes are awarded. What is the probability of not getting a prize if you buy two tickets.

**Q.8.** A and B are two events such that  $P(A) = 0.54$ ,  $P(B) = 0.69$ ,  $P(A \cap B) = 0.35$ . Find  $P(A' \cap B')$  and  $P(B \cap A')$ .

**Q.9.** A committee of two persons is selected from two men and two women. What is the probability that the committee will have (a) no man? (b) one man? (c) two men?

**Q.10.** In a lottery, a person choses six different natural numbers at random from 1 to 20, and if these six numbers match with the six numbers already fixed by the lottery committee, he wins the prize. What is the probability of Winning the prize in the game.

**Q.11.** A letter is chosen at random from the word 'ASSASSINATION'. Find the probability that letter is (i) a vowel (ii) a consonant.

**Q.12.** Two students Anil and Ashima appeared in an examination. The probability that Anil will qualify the examination is 0.05 and that Ashima will qualify the examination is 0.10. The probability that both will qualify the examination is 0.02. Find the probability that:

- (a) Both Anil and Ashima will not qualify the examination.  
(b) Atleast one of them will not qualify the examination and  
(c) Only one of them will qualify the examination.

**Q.13.** The number lock of a suitcase has 4 wheels, each labelled with ten digits i.e., from 0 to 9. The lock opens with a sequence of four digits with no repeats. What is the probability of a person getting the right sequence to open the suitcase?

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**Q.14.** In a class of 60 students, 30 opted for NCC, 32 opted for NSS and 24 opted for both NCC and NSS. If one of the students is selected at random, find the probability that:

- ( a ) The student opted for NCC or NSS.
- ( b ) The student opted for neither NCC nor NSS.
- ( c ) The student has opted for NSS but not for NCC.

**Q.15.** The probability that a student will pass the final examination in both English and Hindi is 0.5 and the probability of passing neither is 0.1. If the probability of passing the English examination is 0.75, what is the probability of passing the Hindi examination?

**Q.16.** On his vacations, Atul visits four countries (P, Q, R and S) in a random order. Describe the Sample Space of his visit and then find what is the probability that he visits (i) P just before Q? (ii) P either first or second (iii) P first and Q last (iv) P before Q and Q before R? (v) P before Q?

**Q.17.** If 4-digit numbers greater than 5,000 are randomly formed from the digits 0,1,3,5 and 7. What is the probability of forming a number divisible by 5 when

- the digits are repeated?
- the repetition of the digits are not allowed ?