

CLASS –XI
ASSIGNMENT- 11

SUBJECT – MATHEMATICS
TOPIC - PROBABILITY

Q1. Find the probability that a leap year, selected at random, will contain 53 Sundays. (Ans. $\frac{2}{7}$)

Q2. A box contains 10 bulbs of which 3 are defective. If a random sample of 5 bulbs is drawn, find the probability that the sample contains (i) exactly one defective bulb (ii) exactly 2 defective bulbs (iii) no defective bulbs.
Ans (i) $\frac{5}{12}$ (ii) $\frac{5}{12}$ (iii) $\frac{1}{12}$

Q3. If A and B are two mutually exclusive events and $P(A) = \frac{1}{4}$ $P(B) = \frac{2}{5}$, $P(A \cup B) = \frac{1}{2}$ then Find (i) $P(A \cap B)$ (ii) $P(A \cap \bar{B})$ (iii) $(B - A)$

Q4. In single throw of three dice, find the probability of getting a total of 17 or 18. (Ans. $\frac{1}{54}$)

Q5. The letter of word “SOCIETY” are placed at random in a row. What is probability that 3 vowels came together? $\frac{1}{17}$ ()

Q6. A card is drawn at random from well-shuffled deck of 52 cards. Find probability that it is neither ace, nor a king? $\frac{11}{13}$ ()

Q7. In a lottery of 50 tickets numbered from 1 to 50, 2 tickets are drawn simultaneously. Find the probability that :-
(i) both the tickets have prime numbers on it ($\frac{21}{245}$) (ii) None of the tickets drawn has a prime number on it. $\frac{17}{35}$ ()

Q8. Out of the students attending a lecture, 50% could not see what was written on the board and 40% could not hear. What the lecturer was saying. Most unfortunate 30% fell into both of these categories. What is the probability that a student picked at random was able to hear and see satisfactorily. $\frac{2}{5}$ ()

Q9. If A, B and C are mutually exclusive and exhaustive events and it is known that $P(A \cup B) = 0.63$ Calculate $P(c)$.

Q10. The probability that a student will pass final examination in both Hindi & Eng is 0.5 & probability of passing neither is 0.1. If probability of passing Eng examination is 0.75, what is probability of passing Hindi examination. (Ans. 0.65)

Q11. A box contains 9 red, 7 white and 4 black balls. If two balls drawn at random, find the probability that :- () () () ()

- (i) both balls are red $\frac{8}{95}$ (ii) 1 ball is white $\frac{91}{190}$ (iii) balls are of same colour $\frac{63}{190}$ (iv) 1 is white and other red. $\frac{63}{190}$ $\left[\quad \right]$

Q12. One number is chosen from numbers 1 to 200. What is the probability that it is divisible by 4 or 6. $\frac{67}{200}$

Q13. The probability that a person will get an electric contract is $\frac{2}{5}$ and the probability that he will not get plumbing contract is $\frac{4}{7}$. If the probability of getting atleast one contract is $\frac{2}{3}$, what is the probability that he will get both ? $\frac{17}{105}$ $\left[\quad \right]$

Q14(i) A and B are 2 events such that $P(A) = 0.42$, $P(B) = 0.48$ and $P(A \text{ and } B) = 0.16$. Determine (a) $P(\text{not } A)$ (b) $P(A \text{ or } B)$

(ii) E and F are two events such that $P(E) = 0.4$, $P(F) = 0.5$, $P(E \cup F) = 0.6$, find $P(E \cap F)$.

(iii) $P(E) = 0.60$, $P(E \text{ or } F) = 0.85$, $P(E \text{ and } F) = 0.42$ Find $P(F)$.

Q15. In a single throw of two dice, find the probability that neither a doublet nor a total of 9 will appear.