A. Choose the correct alternative : 1 Mark

1. If A and B are independent events, then $P(A \cap B)$ is—
   (a) $P(A) + P(B)$ (b) $P(A) \cdot P(B)$
   (c) $P\left(\frac{A}{B}\right)$ (d) $P\left(\frac{B}{A}\right)$

2. If A, B are two mutually exclusive events then $P(A + B)$ is equal to—
   (a) $P(A) \cdot P(B)$
   (b) $P(A) + P(B)$
   (c) $P(A) + P(B) - P(A \cap B)$
   (d) $P(A) + P(B) + P(A \cap B)$

3. The probability of a sure event is—
   (a) 1 (b) 2
   (c) $\frac{1}{2}$ (d) unlimited

4. The probability of an unlimited event is—
   (a) 1 (b) 2
   (c) $\frac{1}{2}$ (d) 0

5. If E is an event, the $P(\bar{E})$ is equal to—
   (a) $P(E)$ (b) $1 - P(E)$
   (c) $-P(E)$ (d) $1 + P(E)$

6. If the probability of an event is P(E), then—
   (a) $P(E) \geq 0$ (b) $P(E) \geq 1$
   (c) $P(E) \leq 0$ (d) $0 \leq P(E) \leq 1$

7. A dice is thrown once. Then the probability of getting a number greater than 3 is—
   (a) $\frac{1}{2}$ (b) $\frac{2}{3}$
   (c) 6 (d) 0

8. The probability of having at least one tail in 4 throws with a coin is—
   (a) $\frac{15}{16}$ (b) $\frac{1}{16}$
   (c) $\frac{1}{4}$ (d) 1

9. A single letter is selected at random from the word 'PROBABILITY'. The probability that it is a vowel is—
   (a) $\frac{3}{11}$ (b) $\frac{4}{11}$
   (c) $\frac{2}{11}$ (d) 0

10. Three identical dice are rolled. The probability that the same number will appear on each of them is—
    (a) $\frac{1}{6}$ (b) $\frac{1}{36}$
    (c) $\frac{1}{18}$ (d) $\frac{3}{28}$

11. If three dice are thrown simultaneously, then the probability of getting score of 5 is—
    (a) $\frac{5}{216}$ (b) $\frac{1}{6}$
    (c) $\frac{1}{36}$ (d) $\frac{1}{72}$

12. From a pack of 52 cards, the probability of drawing a court card is—
    (a) $\frac{4}{13}$ (b) $\frac{3}{13}$
    (c) $\frac{1}{13}$ (d) $\frac{1}{4}$

13. The probability of not getting a sum 7 in a single throw with a pair of dice is–

(a) $\frac{1}{6}$ (b) $\frac{2}{3}$

(c) $\frac{1}{3}$ (d) $\frac{5}{6}$

14. Two dice are thrown. The number of sample points in a sample space when six does not appear on any one side is–

(a) 11 (b) 30

(c) 18 (d) 25

15. A dice is tossed twice. The probability of having a number greater than 4 on each toss is–

(a) $\frac{1}{9}$ (b) $\frac{1}{3}$

(c) $\frac{1}{12}$ (d) $\frac{2}{3}$

16. From each of the four married couples, one of the partners is selected at random.The probability that those selected are of the same sex is–

(a) $\frac{1}{2}$ (b) $\frac{1}{4}$

(c) $\frac{1}{8}$ (d) $\frac{1}{16}$

17. A and B toss 3 coins.The probability that both obtain the same number of heads is–

(a) $\frac{1}{9}$ (b) $\frac{3}{16}$

(c) $\frac{5}{16}$ (d) $\frac{3}{8}$

18. Two fair dice are tossed. The probability that both show an even number is–

(a) $\frac{1}{4}$ (b) $\frac{1}{3}$

(c) $\frac{1}{6}$ (d) $\frac{5}{36}$

19. The probability that a card drawn out of a packet of 52 of diamond is–

(a) $\frac{0}{52}$ (b) $\frac{1}{52}$

(c) $\frac{1}{13}$ (d) $\frac{1}{4}$

20. A fair coin is tossed four times. The probability that heads exceed tails in number is–

(a) $\frac{1}{2}$ (b) $\frac{11}{16}$

(c) $\frac{5}{16}$ (d) None of these

21. A balanced die to rolled twice. The probability that the sum of the figures observed is 6 is equal to–

(a) $\frac{4}{36}$ (b) $\frac{5}{36}$

(c) $\frac{6}{36}$ (d) $\frac{7}{36}$

22. The simultaneous tossing of two coins, the probability of getting 2 tails is–

(a) 0 (b) 1

(c) $\frac{1}{2}$ (d) $\frac{1}{4}$

23. Three coins are tossed once. The probability of getting at most 2 heads is–

(a) $\frac{3}{8}$ (b) $\frac{1}{2}$

(c) $\frac{7}{8}$ (d) $\frac{1}{8}$

24. When the three coins are tossed simultaneously, then the probability of getting one head will be–

(a) $\frac{7}{8}$ (b) $\frac{3}{8}$

(c) $\frac{1}{7}$ (d) $\frac{3}{7}$

25. In a single throw of two dice, the chance of throwing a sum 8 is—

(a) $\frac{7}{36}$ (b) $\frac{5}{36}$

(c) $\frac{1}{9}$ (d) $\frac{1}{18}$

26. Ram Lal throws three coins. The probability of at least one head turning up is—

(a) $\frac{1}{3}$ (b) $\frac{1}{8}$

(c) $\frac{1}{4}$ (d) $\frac{7}{8}$

27. From a well shuffled deck of 52 cards, the probability of drawing a black card is—

(a) $\frac{1}{26}$ (b) $\frac{1}{2}$

(c) $\frac{1}{13}$ (d) $\frac{2}{13}$

28. Probability of getting heads in all the three trails, when a balanced coin is tossed thrice will be—

(a) $\frac{1}{4}$ (b) $\frac{1}{2}$

(c) 1 (d) $\frac{1}{8}$

29. The chance of throwing an ace in the first only of two successive thrown with an ordinary die is—

(a) $\frac{1}{6}$ (b) $\frac{5}{36}$

(c) $\frac{1}{36}$ (d) $\frac{25}{36}$

30. If A and B are such that $P(A) > 0$ and $P(B) \neq 1$, then $P\left(\frac{\bar{A}}{B}\right)$ is equal to—

(a) $1 - P\left(\frac{A}{B}\right)$ (b) $1 - P\left(\frac{\bar{A}}{B}\right)$

(c) $\frac{1 - P(A \cup B)}{P(\bar{B})}$ (d) $\frac{P(A)}{P(B)}$

31. The probability of three mutually exclusive events A, B, C are : $P(A) = \frac{2}{3}$, $P(B) = \frac{1}{4}$, $P(C) = \frac{1}{6}$. Is the statement—

(a) true

(b) wrong

(c) could be either

(d) do not know

32. Given the independent events A and B such that $P(A) = 0.30$ and $P(B) = 0.60$ The probability of getting neither A nor B is—

(a) 0.12 (b) 0.42

(c) 0.13 (d) 0.28

33. In Q. No. 32 ; probability of getting A and not B is—

(a) 0.18 (b) 0.12

(c) 0.28 (d) None of these

34. In Q. No. 32, probability of getting both A and B is—

(a) 0.18 (b) 0.42

(c) 0.72 (d) None of these

35. One hundred cards are numbered from 1 to 100. The probability that a randomly chosen card has a digit 5 is—

(a) $\frac{1}{100}$ (b) $\frac{9}{100}$

(c) $\frac{19}{100}$ (d) None of these

36. Two disc are rolled one after the other. The probability that the number on the first is smaller than the number on the second is—

(a) $\frac{1}{2}$ (b) $\frac{7}{18}$

(c) $\frac{3}{4}$ (d) $\frac{5}{12}$

37. The probability of getting 10 in a single throw of three fair dice is –

(a) $\frac{1}{6}$ (b) $\frac{1}{8}$

(c) $\frac{1}{9}$ (d) None of these

38. In order to get at least once a head with probability ≥ 0.9, the number of times a coin needs to be tossed is –

(a) 3 (b) 4

(c) 5 (d) None of these

39. If two squares are chosen at random on a chess board, the probability that they have a side in common is –

(a) $\frac{1}{9}$ (b) $\frac{1}{18}$

(c) $\frac{2}{7}$ (d) None of these

40. If there are 6 girls and 5 boys who sit in a row, then the probability that no two boys sit together is –

(a) $\frac{6!6!}{2!1!1!}$ (b) $\frac{7!5!}{2!1!1!}$

(c) $\frac{6!7!}{2!1!1!}$ (d) None of these

41. One hundred identical coins, each with probability, p, of showing up heads are tossed once. If $0 < p < 1$, and the probability of heads showing on 50 coins is equal to that of heads showing on 51 coins, then the value of p is –

(a) $\frac{1}{2}$ (b) $\frac{49}{101}$

(c) $\frac{50}{101}$ (d) $\frac{51}{101}$

42. If $P(A \cap B) = \frac{1}{2}$, $P(\bar{A} \cap \bar{B}) = \frac{1}{3}$, $P(A) = p$, $P(B) = 2p$, then the value of p is given by –

(a) $\frac{1}{3}$ (b) $\frac{7}{18}$

(c) $\frac{4}{9}$ (d) $\frac{1}{2}$

43. A coin is tossed n times. The probability that head will turn up an odd number of times, is –

(a) $\frac{1}{2}$ (b) $\frac{n+1}{2n}$

(c) $\frac{n-1}{2n}$ (d) $\frac{2^{n-1}-1}{2^n}$

44. Seven people seat themselves indiscriminately at round table. The probability that two distinguished persons will be next to each other is –

(a) $\frac{1}{3}$ (b) $\frac{1}{2}$

(c) $\frac{1}{4}$ (d) None of these

45. The probability that a leap year selected at random contains either 53 Sundays or, 53 Mondays, is –

(a) $\frac{2}{7}$ (b) $\frac{4}{7}$

(c) $\frac{3}{7}$ (d) $\frac{1}{7}$

46. A sum of money is rounded off to the nearest rupee; the probability that round off error is at least ten paise is –

(a) $\frac{19}{101}$ (b) $\frac{19}{100}$

(c) $\frac{82}{101}$ (d) $\frac{81}{100}$

47. If A and B are two events such that $P(A) > 0$ and $P(B) \neq 1$, then $P\left(\frac{\bar{A}}{\bar{B}}\right)$ is equal to –

(a) $1 - P\left(\frac{A}{\bar{B}}\right)$ (b) $1 - P\left(\frac{\bar{A}}{\bar{B}}\right)$

(c) $\frac{1 - P(A \cap B)}{P(\bar{B})}$ (d) $\frac{P(\bar{A})}{P(\bar{B})}$

48. In an experiment the success is twice that of failure. If the experiment is repeated 6 times, the probability that at least 4 times favourable is –

(a) $\frac{64}{779}$ (b) $\frac{192}{779}$

(c) $\frac{240}{779}$ (d) $\frac{496}{779}$

49. Two coins and a dice are tossed. The probability that both coins fall heads and the dice shows a 3 or 6 is –

(a) $\frac{1}{8}$ (b) $\frac{1}{12}$

(c) $\frac{1}{16}$ (d) None of these

50. Six coins are tossed simultaneously. The probability of getting at least 4 heads is –

(a) $\frac{11}{64}$ (b) $\frac{11}{32}$

(c) $\frac{15}{44}$ (d) $\frac{21}{32}$

51. Six dice are thrown. The probabili