

## PROBABILITY [A]

= Number of favorable outcomes / Number of possible outcomes

- {A}. Three coins are tossed once. Find the probability of getting  
(i) all heads (ii) at least two heads (iii) at most two heads (iv) no heads (v) exactly one tail  
(vi) exactly two tails (vii) a head on first coin
- Three fair coins are tossed simultaneously. Find the probability of
  - 1. getting one head a. 0 b.  $3/4$  c.  $5/8$  d.  $3/8$
  - 2. getting at least one head a.  $7/8$  b.  $1/8$  c.  $3/4$  d.  $1/4$
  - 3. getting at least one head and one tail a.  $3/10$  b.  $3/4$  c.  $5/8$  d.  $3/8$
  - 4. getting more heads than number of tails a.  $2/5$  b.  $1/2$  c.  $5/8$  d.  $7/8$

{B}. Two dice are thrown simultaneously. Find the probability of getting  
(i) a total of at least 10 (ii) a doublet of even number (iii) same number on both dice  
(iv) an even number as sum (v) a multiple of 3 as sum

    - Two dice are rolled simultaneously. Find the probability of
    - 5. getting a total of 9 or 11 a.  $1/3$  b.  $1/9$  c.  $8/9$  d.  $9/10$
    - 6. getting a multiple of 2 on one and multiple of 3 on another a.  $15/36$  b.  $25/36$  c.  $11/36$  d.  $5/6$
    - 7. getting the sum of numbers on the two faces divisible by 3 or 4 a.  $4/9$  b.  $1/7$  c.  $5/9$  d.  $7/12$
    - 8. getting sum as prime number a.  $3/5$  b.  $5/12$  c.  $1/2$  d.  $3/4$
    - 9. getting at least one 5 a.  $1/5$  b.  $3/5$  c.  $1/2$  d.  $3/4$

{C}. One card is drawn from a pack of 52 cards, each card with equal probability. Probability of getting  
(i) an ace (ii) red card (iii) either heart or king (iv) either red or king (v) red and a king

      - One card is drawn from a pack of 52 cards, each card with equal probability. Find the probability that
      - 10. card drawn is black a.  $1/2$  b.  $1/4$  c.  $1/8$  d.  $8/13$
      - 11. card drawn is queen a.  $1/12$  b.  $1/13$  c.  $1/4$  d.  $3/4$
      - 12. card drawn is black and a queen a.  $1/13$  b.  $1/52$  c.  $1/26$  d.  $5/6$
      - 13. card drawn is either black or a queen a.  $7/13$  b.  $5/26$  c.  $1/26$  d.  $1/52$
      - 14. card drawn is either a king or queen a.  $1/13$  b.  $2/13$  c.  $5/26$  d.  $12/13$
      - 15. card drawn is either a heart, a queen or a king a.  $17/52$  b.  $21/52$  c.  $19/52$  d.  $9/26$
      - 16. card drawn is neither spade nor a king a.  $4/13$  b.  $8/13$  c.  $9/13$  d.  $1/2$

{D} An urn contains 9 red, 7 white and 4 black balls. If two balls are drawn at random, find the probability that (i) both balls are red (ii) one ball is white (iii) the balls are of same colors (iv) one is white and one is red

        - A bag contains 8 red and 4 green balls. Find the probability that
        - 17. ball drawn is red when one ball is selected randomly a.  $1/3$  b.  $2/3$  c.  $1/6$  d.  $5/6$
        - 18. all 4 balls are red when 4 balls drawn at random a.  $17/32$  b.  $14/99$  c.  $7/12$  d.  $1/2$
        - 19. 2 red and 1 green ball when 3 balls are drawn randomly a.  $56/99$  b.  $112/495$  c.  $78/495$  d.  $28/55$
        - 20. 3 balls are drawn and none of them is red a.  $68/99$  b.  $7/99$  c.  $4/495$  d.  $1/55$

21. In a lottery of 50 tickets numbered 1 to 50, two tickets are drawn simultaneously. Find the probability that

- (i) both tickets have prime numbers a.  $21/133$  b.  $21/245$  c.  $31/245$  d.  $3/7$
- (ii) none of the tickets drawn has prime numbers a.  $21/133$  b.  $21/245$  c.  $31/245$  d.  $3/7$
- (iii) one ticket has prime number a.  $21/133$  b.  $22/35$  c.  $17/35$  d.  $13/17$

22. Four persons are to be chosen at random from a group of 3 men, 2 women and 4 children. Find the probability of selecting

- (i) 1 man, 1 woman and 2 children a.  $21/37$  b.  $2/7$  c.  $3/5$  d.  $3/7$
- (ii) exactly 2 children a.  $21/133$  b.  $10/21$  c.  $11/21$  d.  $13/17$
- (iii) 2 women a.  $1/7$  b.  $2/5$  c.  $1/6$  d.  $3/7$

23. A box contains 10 bulbs out of which three are defective. If a random sample of five bulbs is drawn, find the probability that sample contains

- (i) exactly one defective bulb a.  $21/133$  b.  $5/12$  c.  $3/17$  d.  $7/12$
- (ii) exactly two defective bulbs a.  $1/3$  b.  $7/9$  c.  $5/12$  d.  $3/7$
- (iii) no defective bulbs a.  $1/12$  b.  $2/5$  c.  $3/7$  d.  $4/7$

24. A speaks truth in 75% cases and B in 80% cases. In what percentage of cases are they likely to contradict each other, narrating same incident a. 5% b. 15% c. 35% d. 45%

25. A problem is given to three students whose chances of solving it are  $1/2$ ,  $1/3$  and  $1/4$  respectively. What is the probability that the problem will be solved?  
a.  $1/4$  b.  $3/4$  c.  $3/5$  d.  $8/9$

26. A man and his wife appear in an interview for two vacancies in the same post. The probability of husband's selection is  $(1/7)$  and the probability of wife's selection is  $(1/5)$ . What is the probability that only one of them is selected ?

- a.  $1/7$  b.  $2/5$  c.  $1/4$  d.  $2/7$

27. Host, his wife and 8 guests are to be seated on around dinning table at random. Probability that the host and his wife sit together is

- a.  $1/9$  b.  $2/9$  c.  $1/5$  d.  $1/10$

28. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?

- a.  $1/2$  b.  $2/5$  c.  $8/15$  d.  $9/20$