DPP-1

[Introduction, Basic definitions]

1. A coin is tossed three times. The probability that in the second toss head does not occur, is-

A. 1 B. 1/2

C. 1/3 D. 1/4

2. The probability of getting difference of number as 5, when two dice are tossed together is-

A. 1/9 B. 1/18

C. 1/12 D. 1/4

3. Three cards are drawn from a pack of 52 cards. The probability that they are of the same colour is-

A. 4/17 B. 22/225

C. 3/17 D. 2/17

4. The probability that a non-leap year will have 53 Saturdays is-

A. 1/7 B. 2/7

C. 3/17 D. 5/7

5. There are 13 men and 2 women in a party. They are seated round a circular table. The probability that the two women will sit together is-

A. 2/105 B. 1/105

C. 1/14 D. 1/7

6. If the probabilities of boy and girl to be born are same, then in a 4 children family the probability of being at least one girl, is-

A. 14/16 B. 15/16

C. 1/8 D. 3/8

7. An urn contains 5 white and 3 black balls and 4 balls are drawn at random. The probability of getting white and black balls equal in number is-

A. 1/7 B. 2/7

C. 3/7 D. None of there

8. A box contains 25 tickets numbered 1, 2....25. If two tickets are drawn at random then the probability that the product of their numbers is even, is -

A. 11/50 B. 13/50

C. 37/50 D. None of there

9. One of the two events must occur. If the chance of one is 2/3 of the other, then odds in favour of the other are-

A. 2:3 B. 1:3

C. 3:1 D. 3:2

10. A bag contains 3 black and 2 white balls. What are the odds in favour of drawing a white ball?

A. 3:2 B. 2:5

C. 2:3 D. 3:5

Answer Key

1. B	2. B	3. A	4. A
5. D	6. B	7. C	8. C
9. D	10. C		

DPP-2
[Venn diagrams Addition theorem]

1. If two dice are thrown, then the probability of getting the sum of digits even or less than 5 is-

A. 1/2 B. 1/6

C. 2/3 D. 5/9

2. A card is drawn from a pack of 52 cards. The probability that the card drawn is neither a heart nor a king is-

A. 35/52 B. 9/13

C. 17/52 D. 4/13

3. If P(A) = 0.25, P(B) = 0.50 & P (A ∩ B) = 0.14, then the probability that neither A nor B occurs is-

A. 0.39 B. 0.25

C. 0.11 D. None of these

4. A, B and C are three mutually exclusive and exhaustive events and $P(B)=\frac{3}{2}P(A), P(C)=\frac{1}{3}P(B)$, then the value of P(A) is-

A. 1/3 B. 1/2

C. 1/6 D. None of these

5. A card is drawn from a well shuffled pack of 52 cards. Its probability of being an ace or a king or a queen or a jack is -

A. 1/13 B. 2/13

C. 3/13 D. 4/13

6. Two dice are thrown together. If 3 appears on at least one of the dice, then what is the probability that the sum is greater than 9

A. 1/4 B. 3/11

C. 5/11 D. zero

7. In a certain town, 40% of the people have brown hair, 25% have brown eyes and 15% have both brown hair and brown eyes. If a person selected at random has brown hair, the probability that he also has brown eyes is-

A. 2/5 B. 1/4

C. 1/2 D. 3/8

8. A bag contains 7 red and 3 black balls. Three balls are drawn at random from the bag one after the other. The probability that the first two are red and the third is black is-

A. 21/40 B. 1/5

C. 7/50 D.7/40

9. If $\frac{1+4p}{4}, \frac{1-p}{4}, \frac{1-2p}{2}$ are probabilities of three mutually exclusive events, then-

A. $\frac{1}{3} \le p \le \frac{1}{2}$ B. $\frac{1}{2} \le p \le \frac{2}{3}$

C. $\frac{1}{6} \le p \le \frac{1}{2}$ D. None of these

10. If the probability of solving a problem by three students are 1/2, 2/3 and 1/4, then probability that the problem will be solved-

A. 1/2 B. 3/4

C. 7/8 D. 1/8

Answer Key

1. D	2. B	3. A	4. A
5. D	6. D	7. D	8. D
9. D	10. D		

DPP-3

[Addition theorem, Conditional probability]

1. Let $P(A)=0.4$ & $P(B/A)=0.5$. The probability $P(\bar{A}\cup\bar{B})$ is equal to-

A. 0.8 B. 0.7

C. 0.6 D. None of these

2. If A and B are two events such that P(A) = 1/3, $P(B)=1/4$ & $P(A\cap B)=1/5$, then $P\left(\frac{\bar{B}}{\bar{A}}\right)=$

A. 37/40 B. 37/45

C. 23/40 D. None

3. If $P(A\cup B)=3/4$ & $P(\bar{A})=2/3$, then $P(\bar{A}\cap B)$ equals-

A. 1/12 B. 7/12

C. 5/12 D. None

4. Let A and B be two events such that $P(\overline{A\cup B})=\frac{1}{6}$, $P(A\cap B)=\frac{1}{4}$ & $P(\bar{A})=\frac{1}{4}$, where $\bar{A}$ stands for complement of event A. Then events A and B are-

A. equally likely and mutually exclusive

B. equally likely but not independent

C. independent but not equally likely

D. mutually exclusive and independent

5. A die is thrown. Let A be the event that the number obtained is greater than 3. Let B be the event that the number obtained is less than 5. Then P(A ∪ B) is

A. 0 B. 1

C. $\frac{2}{5}$ D. $\frac{3}{5}$

6. It is given that the events A and B are such that $P(A)=\frac{1}{4}, P(A|B)=\frac{1}{2}$ & $P(B|A)=\frac{2}{3}$. Then P(B) is

A. $\frac{1}{3}$ B. $\frac{2}{3}$

C. $\frac{1}{2}$ D. $\frac{1}{6}$

7. One ticket is selected at random from 50 tickets numbered 00, 01, 02, ..., 49. Then the probability that the sum of the digits on the selected ticket is 8, given that the product of these digits is zero, equals:

A. $\frac{1}{7}$ B. $\frac{5}{14}$

C. $\frac{1}{50}$ D. $\frac{1}{14}$

8. If C and D are two events such that $C \subset D$ & $P(D) \neq 0$, then the correct statement among the following is -

A. $P(C|D) = P(C)$ B. $P(C|D) \geq P(C)$

C. $P(C|D) < P(C)$ D. $P(C|D) = \frac{P(D)}{P(C)}$

9. Three numbers are chosen at random without replacement from {1, 2, 3, ..., 8}. The probability that their minimum is 3, given that their maximum is 6, is :

A. $\frac{1}{5}$ B. $\frac{1}{4}$

C. $\frac{2}{5}$ D. $\frac{3}{8}$

10. An unbiased die with faces marked 1, 2, 3, 4, 5 and 6 is rolled four times. Out of four face values obtained, the probability that the minimum face value is not less than 2 and the maximum face value is not greater than 5 is then -

A. 16 / 81 B. 1/81

C. 80/81 D. 65/81

11. You are given a box with 20 cards in it. 10 of these cards have letter I printed on them. The other ten have the letter T printed on the. If you pick up 3 cards at random and keep them in same order, the probability of making the word I.I.T. is-

A. $\frac{9}{80}$

B. $\frac{1}{8}$

C. $\frac{4}{27}$

D. $\frac{5}{38}$

12. Three numbers are chosen at random without replacement from {1, 2, 3....10}. The probability that the minimum of the chosen numbering is 3 or their maximum is 7,

A. 7/40

B. 5/40

C. 11/40

D. None of these

Answer Key

1. A	2. B	3. C	4. C
5. B	6. A	7. D	8. B
9. A	10. A	11. D	12. C

DPP-4

[Multiplication theorem]

1. A coin is tossed three times. The probability of getting all heads or tails only is-

A. 0 B. 1/2

C. 1/4 D. 1

2. The probability of getting head and tail alternatively in three throws of a coin (or in a throw of three coins) is-

A. 1/3 B. 1/4

C. 1/5 D. 3/5

3. From a pack of 52 cards two cards are drawn in succession the first having been replaced before the second is drawn. The probability that the first is a diamond and the second is a king, is-

A. 1/52 B. 1/13

C. 1/4 D. 4/13

4. If two cards are drawn from a pack of card one by one. If first drawn card is replaced, then the probability of getting two jacks is-

A. 1/221 B. 1/169

C. 12/221 D. 4/663

5. For solving a problem, odds against to A are 4 : 3 and odds in favour to B are 7: 5. The probability that the problem will not be solved is-

A. 16/21 B. 5/21

C. 43/84 D. 45/84

6. If A and B are any two events such that $P(A+B)=5/6$, $P(AB)=1/3$, $P(\bar{B})=1/2$, then the events A and B are-

A. independent B. dependent

C. mutually D. Exhaustive

7. A man and a woman appear in an interview for two vacancies in the same post. The probability of man's selection is 1/4 and that of the woman's selection is 1/3. What is the probability that none of them will be selected-

A. 1/2 B. 1/12

C. 1/4 D. None of these

8. A bag contains 4 black and 3 white balls. Two- two balls are drawn two times. If balls are not replaced once it is drawn then the probability that first two balls are black and second two balls are white is-

A. 4/49 B. 2/35

C. 1/35 D. 3/35

9. A draws two cards one by one (replacing previous one) from a pack of cards and B throws two dice together. The probability that both cards of A are of the same suit and the sum of digits of B is 6, will be-

A. 1/4 B. 1/44

C. 5/144 D. 7/144

10. The probability that a man will remain alive for the next 25 years is 4/5 and the probability that his wife will remain alive for the same 25 years is 3/4. The probability that at least one of them will be alive 25 years hence, is-

A. 19/20 B. 3/5

C. 3/20 D. None of these

Answer Key

1. C	2. B	3. A	4. B
5. B	6. A	7. A	8. D
9. C	10. A		

DPP-5

[Law of total probability Baye's Theorem]

1. A bag A contains 2 white and 3 red balls and bag B contains 4 white and 5 red balls. One ball is drawn at random from a randomly chosen bag and is found to be red. The probability that it was drawn from bag B was-

A. 5/14 B. 5/16

C. 5/18 D. 25/52

2. A man is known to speak the truth 3 out of 4 times. He throws a die and reports that it is a six. The probability that it is actually a six, is-

A. 3/8 B. 1/5

C. 3/4 D. None of these

3. The probability of defective screws in three boxes A, B, C are $\frac{1}{5}, \frac{1}{6}, \frac{1}{7}$ respectively. A box is selected at random and a screw drawn from it at random is found to be defective. Then the probability that it came from box A is

A. 16/29 B. 1/15

C. 27/59 D. 42/107

4. Odds 8 to 5 against a person who is 40 years old living till he is 70 and 4 to 3 against another person now 50 till he will be living 80. Probability that one of them will be alive next 30 years-

A. 59/91 B. 44/91

C. 51/91 D. 32/91

5. Two aeroplanes I and II bomb a target in succession. The probabilities of I and II scoring a hit correctly are 0.3 and 0.2, respectively. The second plane will bomb only if the first misses the target. The probability that the target is hit by the second plane is-

A. 0.06 B. 0.14

C. 0.2 D. 0.7

6. An urn contains nine balls of which three are red, four are blue and two are green. Three balls are drawn at random without replacement from the urn. The probability that the three balls have different colours is -

A. $\frac{1}{3}$ B. $\frac{2}{7}$

C. $\frac{1}{21}$ D. $\frac{2}{23}$

7. Let E and F be two independent events. The probability that both E and F happen is 1/12 and the probability that neither E nor F happens is 1/2. Then-

A. P(E) = 1/3, P(F) = 1/4 B. P(E) = 1/2, P(F) = 1/6

C. P(E) = 1/6, P(F) = 1/2 D. None of these

8. If from each of the three boxes containing 3 white and 1 black, 2 white and 2 black, 1 white and 3 black balls, one ball is drawn at random, then the probability that 2 white and 1 black ball will be drawn is -

A. 13/32 B. 1/4

C. 1/32 D. 3/16

9. There are four machines and it is known that exactly two of them are faulty. They are tested, one by one, in a random order till both the faulty machines are identified. Then the probability that only two tests are needed is -

A. 1/3 B. 1/6

C. 1/2 D. 1/4

10. Let E^c denote the complement of an event E. Let E, F, G be pairwise independent events with P(G) > 0

and $P(E \cap F \cap G) = 0$. Then $P(E^c \cap F^c \mid G)$ equals

A. $P(E^c) + P(F^c)$ B. $P(E^c) - P(F^c)$

C. $P(E^c) - P(F)$ D. $P(E) - P(F^c)$

11. An experiment has 10 equally likely outcomes. Let A and B be two non-empty events of the experiment. If A consists of 4 outcomes, the number of outcomes that B must have so that A and B are independent, is-

A. 2, 4 or 8 B. 3, 6 or 9

C. 4 or 8 D. 5 or 10

12. Four persons independently solve a certain problem correctly with probabilities $\frac{1}{2}, \frac{3}{4}, \frac{1}{4}, \frac{1}{8}$. Then the probability that the problem is solved correctly by at least one of them is –

A. $\frac{235}{256}$

B. $\frac{21}{256}$

C. $\frac{3}{256}$

D. $\frac{253}{256}$

Answer Key

1. D	2. A	3. D	4. B
5. B	6. B	7. A	8. A
9. A	10. C	11. D	12. A