

Probability – Easy

1. There are 15 boys and 10 girls in a class. If three students are selected at random, what is the probability that 1 girl and 2 boys are selected?

- A. $1/40$
- B. $1/2$
- C. $21/46$
- D. $7/41$
- E. None of these

2. Two friends Harish and Kalyan appeared for an exam. Let A be the event that Harish is selected and B is the event that Kalyan is selected. The probability of A is $2/5$ and that of B is $3/7$. Find the probability that both of them are selected.

- A. $35/36$
- B. $5/35$
- C. $5/12$
- D. $6/35$
- E. None of these

3. A card is drawn from a well shuffled pack of 52 cards. What is the probability of getting queen or club card?

- A. $17/52$
- B. $15/52$
- C. $4/13$
- D. $3/13$
- E. None of these

4. 16 persons shake hands with one another in a party. How many shake hands took place?

- A. 124
- B. 120
- C. 165
- D. 150
- E. None of these

5. 2 dice are thrown simultaneously. What is the probability that the sum of the numbers on the faces is divisible by either 3 or 5?

- A. $7/36$
- B. $19/36$

- C. $9/36$
- D. $2/7$
- E. None of these

6. Preethi was born between August 26 and 30 (26 and 30 excluding). Her year of birth is also unknown. What is the probability of Preethi being born on a Monday?

- A. $4/7$
- B. 1
- C. 0
- D. $3/7$
- E. None of these

7. A number is selected at random from first 40 natural numbers. What is the chance that it is a multiple of either 4 or 14?

- A. $1/5$
- B. $11/40$
- C. $3/10$
- D. $10/40$
- E. None of these

8. In how many different ways can the letters of the word 'THERAPY' be arranged so that the vowels never come together?

- A. 720
- B. 1440
- C. 5040
- D. 3600
- E. 4800

9. If 6 boys and 6 girls have to sit in a round circular music chair. So, that there is a girl between every 2 boys. Find the number of ways they can sit?

- A. $6! \times 5!$
- B. $6! \times 4!$
- C. $6! \times 3!$
- D. $6! \times 2!$
- E. None of these

10. Two cards are drawn from pack of 52 cards. What is the probability that both are kings, when first drawn card is replaced?

- A. $1/169$
- B. $3/13$

- C. $\frac{3}{676}$
- D. $\frac{4}{676}$
- E. None of these

11. A bag contains 5 yellow and 2 green and 3 red colour dice. If one dice from the bag are choosen at random, what is the probability that dice is either yellow or red colour?

- A. $\frac{3}{4}$
- B. $\frac{4}{5}$
- C. $\frac{3}{10}$
- D. $\frac{7}{10}$
- E. None of these

12. An integer is chosen at random from the first fifty integers. What is the probability that the integer chosen is a prime or multiple of 4?

- A. $\frac{14}{25}$
- B. $\frac{3}{5}$
- C. $\frac{3}{5}$
- D. $\frac{27}{50}$
- E. None of these

13. A card is drawn from a pack of 52 cards. The card is drawn at random. What is the probability that it is neither a heart nor a king?

- A. $\frac{4}{13}$
- B. $\frac{7}{13}$
- C. $\frac{9}{13}$
- D. $\frac{11}{13}$
- E. None of these

14. A box contains 15 tube lights, out of which 6 are repair. 3 tube lights are chosen at random from this box. Find the probability that at least one of these is repair?

- A. $\frac{53}{65}$
- B. $\frac{62}{45}$
- C. $\frac{84}{65}$
- D. $\frac{73}{45}$
- E. None of these

15. A fruit basket contains 10 Guavas and 20 Bananas out of which 3 Guavas and 5 Bananas are defective. If two fruits selected at random, what is the probability that

either both are Bananas or both are non-defective?

- A. 315/435
- B. 313/435
- C. 317/435
- D. 316/435
- E. None of these

16. Three Bananas and three oranges are kept in a box. If two fruits are chosen at random, Find the probability that one is Banana and another one is orange?

- A. $\frac{1}{5}$
- B. $\frac{3}{5}$
- C. $\frac{4}{5}$
- D. $\frac{2}{5}$
- E. None of these

17. A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If three balls are picked at random, what is the probability that two are Black and one is Green?

- A. $\frac{22}{355}$
- B. $\frac{15}{381}$
- C. $\frac{10}{393}$
- D. $\frac{14}{455}$
- E. $\frac{18}{455}$

18. How many 3 digit number can be formed with the digits 5, 6, 2, 3, 7 and 9 which are divisible by 5 and none of its digit is repeated?

- A. 12
- B. 16
- C. 20
- D. 24
- E. None of these

19. In how many ways 4 Indians, 5 Africans and 7 Japanese be seated in a row so that all person of same nationality sits together

- A. $4!$ $5!$ $7!$ $3!$
- B. $4!$ $5!$ $7!$ $5!$
- C. $4!$ $6!$ $7!$ $3!$
- D. can't be determined
- E. None of these

20. 4 matches are to be played in a chess tournament. In how many ways can result be decided?
- A. 27
B. 9
C. 81
D. 243
E. None of these

21. Three children took part in racing competition in their school with their respective probabilities to reach the finishing point being $\frac{1}{3}$, $\frac{1}{5}$ and $\frac{1}{4}$ respectively. What is the probability that at least one of them will finish the race?

- A. $\frac{2}{5}$
B. $\frac{3}{5}$
C. $\frac{1}{5}$
D. $\frac{1}{4}$
E. $\frac{3}{4}$

22. If the letters of the word "CRACKJACK" are rearranged in a random manner, what is the probability that vowels are neither together nor at the ends?

- A. $\frac{11}{18}$
B. $\frac{1}{2}$
C. $\frac{7}{36}$
D. $\frac{5}{12}$

E. None of these

23. A cartoon contains 7 red and 5 green apples. 3 apples are drawn at random. Find the probability that they are of the same colors.

- A. $\frac{7}{44}$
B. $\frac{9}{44}$
C. $\frac{12}{44}$
D. $\frac{3}{44}$
E. None of these

24. 2 cards are drawn together at random from a pack of 52 cards. What is the probability of both the cards being jack?

- A. $25 / 57$
- B. $53/256$
- C. $4/221$
- D. $1/221$
- E. None of these

25. A pouch contains 4 black, 2 red and 5 blue pens. 2 pens are drawn at random. What is the probability that none of the pens drawn is blue?

- A. $5/11$
- B. $15/11$
- C. $3/11$
- D. $17/11$
- E. None of these

26. In an examination, there are three sections namely Reasoning, Maths and English. Reasoning part contains 4 questions. There are 5 questions in maths section and 6 questions in English section. If three questions are selected randomly from the list of questions then what is the probability that all of them are from maths?

- A. $7/91$
- B. $8/91$
- C. $2/91$
- D. $4/91$
- E. None of these

27. A bag contains 5 red caps, 4 blue caps, 3 yellow caps and 2 green caps. If four caps are picked at random, what is the probability that two are red, one is blue and one is green?

- A. $22/1001$
- B. $80/1001$
- C. $21/1001$
- D. $55/1001$
- E. None of these

28. Find the number of different ways of forming a committee consisting of 3 men and 3 women from 6 men and 5 women.

- A. 220
- B. 50
- C. 130

- D. 250
- E. 200

29. In how many different ways can the letters of the word 'FORMULATE' be arranged?

- A. 50400
- B. 362880
- C. 25209
- D. 36082
- E. None of these

30. A box contains 21 balls numbered 1 to 21. A ball is drawn and then another ball is drawn without replacement. What is the probability that both balls are even numbered?

- A. $\frac{2}{7}$
- B. $\frac{8}{21}$
- C. $\frac{3}{14}$
- D. $\frac{5}{21}$
- E. None of these

31. There are 3 green, 4 orange and 5 white color bulbs in a bag. If a bulb is picked at random, what is the probability of having either a green or a white bulb?

- A. $\frac{3}{4}$
- B. $\frac{2}{3}$
- C. $\frac{4}{3}$
- D. $\frac{2}{5}$
- E. None of these

32. When 4 fair coins are tossed together what is the probability of getting at least 3 heads?

- A. $\frac{1}{4}$
- B. $\frac{3}{4}$
- C. $\frac{5}{16}$
- D. $\frac{3}{8}$

E. None of these

33. A committee of 3 members is to be made out of 6 men and 5 women. What is the probability that the committee has at least two women?

A. $\frac{10}{33}$

B. $\frac{14}{33}$

C. $\frac{14}{33}$

D. $\frac{15}{25}$

E. None of these

34. In how many different ways, can the letters of the word 'CRISIS' be arranged?

A. 150

B. 240

C. 120

D. 180

E. None of these

35. In how many different ways can 2 vowels and 3 consonants be selected from 4 vowels and 10 consonants?

A. 720

B. 840

C. 620

D. 240

E. None of these

36. In how many ways can the letters of word COUSIN be arranged so that the vowels in the word always occur in the dictionary order as we move from left to right?

A. 24

B. 60

C. 120

D. 90

E. 720

37. Cards numbered from 107 to 1006 are put in a bag. A card is drawn from it at random. Find the probability that the number on the card is not divisible by 11 and not divisible by 37?

- A. 0.998
- B. 0.105
- C. 0.107
- D. 0.103
- E. None

38. There are 49 cards in a box numbered from 1 to 49. Every card is numbered with only 1 number. Probability of picking up a card, the number printed on which is a multiple of 5 but not that of 10 or 15 is.

- A. $\frac{2}{49}$
- B. $\frac{3}{49}$
- C. $\frac{4}{49}$
- D. $\frac{5}{49}$
- E. None of these

39. Stacy has 43 marbles and Ricky has 92 marbles. Ricky gives a random number of marbles to Stacy. What is the probability that both of them will have an even number of marbles now?

- A. 0
- B. $\frac{1}{2}$
- C. $\frac{1}{4}$
- D. 1
- E. Cannot be determined

40. There are four different bags. Also, there are four different coins. In how many ways can the coins be put into bags if there are exactly two coins in exactly one of the bags?

- A. 48
- B. 96
- C. 72
- D. 144
- E. 180

41. A dice with numbers from 1 to 6 on its faces is thrown. If the outcome is an even number, it is thrown again, otherwise not. It is known that the dice was thrown for four times following this condition. In how many cases can the sum of numbers obtained in four throws be 16?

- A. 0
- B. 36
- C. 12

- D. 6
- E. Cannot be determined

42. Everybody in a room shakes hands with everybody else. The total number of hand-shakes is 55. The total number of persons in the room is:

- A. 11
- B. 12
- C. 8
- D. 14
- E. None of these

43. For a chess team of 6 members, students are to be selected from 20 boys and 25 girls. However, the selected team should have at least two boys and at least two girls. Also, the number of boys and girls should not be equal. In how many ways can the team be selected?

- A. 2403500
- B. 2453500
- C. 3458000
- D. 3857000
- E. 4867000

44. A committee of 6 HODs is to be formed in a university out of 4 people from engineering department, 5 from management department and 3 from medical department. In how many ways the committee can be formed if two head of department from each department are to be included?

- A. 152
- B. 180
- C. 165
- D. 178
- E. None of these

45. All black face cards are removed from a pack of playing cards. The remaining cards are well shuffled and then two cards are drawn at random one after the other without replacement. Find the probability that both the cards drawn are red?

- A. $\frac{5}{9}$
- B. $\frac{65}{207}$
- C. $\frac{325}{1058}$
- D. $\frac{1}{4}$

E. None

46. There are 12 apples in a bag, out of which 4 are not ripe. If 5 apples are taken out of the bag randomly, what is the probability of selecting only ripen apples?

A. $53/252$

B. $7/99$

C. $63/289$

D. $89/564$

E. None of these

47. Two dice are tossed. The probability that the total score is a prime number is :

A. $1/6$

B. $5/12$

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

D. $7/9$

E. None of these

48. A bag contains 8 white balls, 13 black balls and 5 green balls. If two balls are drawn at random from the bag one after another, what is the probability that the first ball is white and the second ball is black?

A. $\frac{3}{26}$

B. $\frac{4}{25}$

C. $\frac{6}{25}$

D. $\frac{9}{25}$

E. None of these

49. A person throws a die two times and gets the sum of the numbers as 5. Calculate the probability that number 3 appeared at least once in the throw.

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

B. $3/2$

C. $\frac{3}{4}$

D. $1/5$

E. None of these

50. Anamika carries a bag which contains 50 coins and each coin is marked from 51 to 100. If she picked one coin at random find the probability that the number on the coin is not a prime number.

- A. $\frac{1}{5}$
- B. $\frac{3}{5}$
- C. $\frac{2}{5}$
- D. $\frac{4}{5}$
- E. None of these

Probability – Moderate

1. Daniel speaks truth in $\frac{2}{5}$ cases and Sherin lies in $\frac{3}{7}$ cases. What is the percentage of cases in which both Daniel and Sherin contradict each other in stating a fact?

- A. 72.6%
- B. 51.4%
- C. 62.3%
- D. 47.5%
- E. None of these

2. The names of 5 students from section A, 6 students from section B and 7 students from section C were selected. The age of all the 18 students was different. Again, one name was selected from them and it was found that it was of section B. What was the probability that it was the youngest student of the section B?

- A. $\frac{1}{18}$
- B. $\frac{1}{15}$
- C. $\frac{1}{6}$
- D. $\frac{1}{12}$
- E. None of these

3. There are total 18 balls in a bag. Out of them 6 are red in colour, 4 are green in colour and 8 are blue in colour. If Vishal picks three balls randomly from the bag, then what will be the probability that all the three balls are not of the same colour?

- A. $\frac{95}{102}$
- B. $\frac{19}{23}$
- C. $\frac{21}{26}$
- D. $\frac{46}{51}$
- E. None of these

4. Bag A contains 3 green and 7 blue balls. While bag B contains 10 green and 5 blue balls. If one ball is drawn from each bag, what is the probability that both are green?

- A. $\frac{29}{30}$
- B. $\frac{1}{5}$
- C. $\frac{1}{3}$
- D. $\frac{1}{30}$
- E. None of these

5. Ram and Shyam are playing chess together. Ram knows the two rows in which he has to put all the pieces in but he doesn't know how to place them. What is the probability that he puts all the pieces in the right place?

- A. $\frac{8!}{16!}$
- B. $\frac{8!}{(2 \times 15!)}$
- C. $\frac{8!}{15!}$
- D. $\frac{(2 \times 8!)}{16!}$
- E. None of these

6. Aarti gave her project assignment to a shopkeeper for binding. There were 19 pages including a cover page, 12 pages of theory and 6 pages of drawings. She told the shopkeeper that the theory pages are in a particular order and the drawing pages can be arranged anywhere provided they are together. If the cover page is always kept first what is the probability that rest of the pages are arranged as per requirement?

- A. ${}^{12}C_1 \times 6! / 18!$
- B. ${}^{13}C_1 \times 6! / 19!$
- C. $13 \times 40 / 17!$
- D. $13! \times 6! / 18!$
- E. None of these

7. A basketball game is played between team Blue and Red. There are a total of 9 players in each team and 5 will play in the game. Ankit is in team blue and Vaibhav is in team Red. What is the probability that at least one of ankit or vaibhav is in playing five?

- A. $\frac{125}{153}$
- B. $\frac{65}{81}$

C. $\frac{56}{81}$
 D. $\frac{72}{81}$

E. None of these

8. A box contains 27 marbles some are blue and others are green. If a marble is drawn at random from the box, the probability that it is blue is $\frac{1}{3}$. Then how many number of green marbles in the box?

- A. 10
 B. 15
 C. 14
 D. 18
 E. None of these

9. Sahil has two bags (A & B) that contain green and blue balls. In the Bag 'A' there are 6 green and 8 blue balls and in the Bag 'B' there are 6 green and 6 blue balls. One ball is drawn out from any of these two bags. What is the probability that the ball drawn is blue?

- A. $\frac{15}{28}$
 B. $\frac{13}{28}$
 C. $\frac{17}{28}$
 D. $\frac{23}{28}$
 E. None of these

10. A box contains slips with numbers from 1 to 50 written on them. A slip is drawn and replaced. Then another slip is drawn and after replacing another slip is drawn. What is the probability that an even number appears on the first draw, an odd number on the second draw and a number divisible by 3 on the third draw?

A. $\frac{1}{25}$
 B. $\frac{2}{25}$
 C. $\frac{8}{25}$
 D. $\frac{4}{25}$

E. None of these

11. There are two decks of 52 cards each. Two cards are to be selected from each deck. In how many ways the four cards can be selected such that the four cards are of different types (it means one is diamond, one is heart, one is spade and one is club)?

- A. 685464
- B. 105456
- C. 632736
- D. 316368
- E. 949104

12. Let A and B be two independent events. The probability that both A and B occur is $\frac{1}{12}$ and the probability that neither A nor B occurs is $\frac{1}{2}$. The respective probabilities of A and B are.

- A. $\frac{1}{6}$ and $\frac{1}{2}$
- B. $\frac{1}{2}$ and $\frac{1}{6}$
- C. $\frac{1}{3}$ and $\frac{1}{4}$ or $\frac{1}{4}$ and $\frac{1}{3}$
- D. $\frac{1}{2}$ and $\frac{1}{2}$
- E. None of these

13. One purse contains a Rs. 1 coin and three 50 p coins, a second purse contains two one rupees and four 50 p coins and a third purse contains three one rupee coins and two 50 p coin. If a coin is taken out of a purse selected at random, find the chance that it is a rupee.

- A. $\frac{53}{180}$
- B. $\frac{71}{180}$
- C. $\frac{1}{90}$
- D. $\frac{61}{180}$
- E. None of these

14. Two boys are playing a game in which they have to pick balls out of a bag. The bag contains 4 red, 3 green, 2 blue and 5 black balls. If one of the boy draws four balls at random, what is the probability that two are red and two are blue?

- A. $\frac{6}{1001}$
- B. $\frac{2}{1000}$
- C. $\frac{6}{1500}$
- D. $\frac{6}{1058}$
- E. None of These

15. A basket contains x black, 4 red and 5 green colour balls. One ball is taken randomly and the probability of getting a green colour ball is $\frac{1}{3}$, and then finds the no. of balls in the basket

- A. 12
- B. 14
- C. 15

- D. 18
- E. 20

16. Bucket A contains x green and $x+5$ black balls and Bucket B contains $(x-2)$ green and $(2x-4)$ black colour balls. Find the total number of balls in the bucket B if one ball is taken from bucket A and the probability of getting one green ball is $\frac{1}{3}$

- A. 8
- B. 9
- C. 6
- D. 5
- E. 12

17. Bucket P contains 4 green, x black and 5 red colour balls and probability of getting one black colour ball is $\frac{2}{5}$. Bucket Q contains $(x+2)$ black, $(x+3)$ pink and $(x-3)$ red colour balls, if two balls are taken from bucket Q then find the probability of getting at least one is pink colour ball

- A. $\frac{3}{38}$
- B. $\frac{11}{38}$
- C. $\frac{27}{38}$
- D. $\frac{25}{38}$
- E. $\frac{23}{38}$

18. A pot contains 5 white and 3 red balls while another pot contains 4 white and 6 red balls. One pot is chosen at random and a ball is drawn from it. If the ball is white, what is the probability that it is from the first pot?

- A. $\frac{5}{16}$
- B. $\frac{41}{80}$
- C. $\frac{25}{41}$
- D. $\frac{1}{5}$
- E. None of these

19. Akshaya and Nikitha play a game where each is asked to select a number from 1 to 8. If the two numbers same, both of them win a prize. The probability that they will not win a prize in a single trial is:

- A. $\frac{1}{8}$
- B. $\frac{5}{8}$
- C. $\frac{4}{8}$
- D. $\frac{7}{8}$
- E. None of these

20. Keshav has 9 friends, 4 boys and 5 girls. In how many ways can he invite them for birthday party, if there have to be exactly 3 girls in the invitees?

- A. 120
- B. 260
- C. 180
- D. 160
- E. None of these

21. A bag contains $x+4$ pink, 6 green and 8 brown colour balls; if two balls are taken random and the probability of getting both are green colour balls is $\frac{5}{92}$, then find the difference between the no. of pink colour balls and the no. of brown colour balls

- A. 1
- B. 2
- C. 3
- D. 4
- E. 0

22. Probability of Raman, Dinesh and Hari speaking truth is $\frac{1}{3}$, $\frac{2}{5}$ and $\frac{3}{4}$. Find the probability of at most one of them speaks truth.

- A. $\frac{13}{60}$
- B. $\frac{19}{60}$
- C. $\frac{17}{60}$
- D. $\frac{27}{60}$
- E. $\frac{31}{60}$

23. On Tossing 5 Unbiased coins together, what is the probability of Heads more than tails?

- A. $\frac{3}{2}$
- B. $\frac{1}{3}$
- C. $\frac{1}{2}$
- D. $\frac{2}{3}$
- E. none of these

24. A bag contains 100 tickets, numbered from 1 to 100. If three tickets are picked at random and with replacement, what is the probability that sum of three numbers on the tickets will even number?

- A. $\frac{1}{2}$
- B. $\frac{3}{4}$

- C. $\frac{1}{8}$
- D. $\frac{3}{8}$
- E. None

25. A box which contains 4 blue balls, 5 black balls, 7 green balls and 4 pink balls. If four balls are taken out. What is the probability of choosing both the balls are either Pink or Black or two balls are taken out randomly?

- A. $\frac{190}{4845}$
- B. $\frac{169}{4845}$
- C. $\frac{260}{4845}$
- D. $\frac{206}{4845}$
- E. None of these

26. Bag A contains 7 Red Balls, 'X' Green Balls, and 5 Yellow Balls. The probability to pick Green Ball at random is $\frac{2}{5}$. Another Bag B contains 'X-3' Red Balls, 'X-4' Yellow Balls and 6 Green Balls. If two balls are picked one after the other from Bag B at random then what is the probability for the Balls to be Red?

- A. $\frac{1}{21}$
- B. $\frac{2}{21}$
- C. $\frac{3}{21}$
- D. $\frac{4}{21}$
- E. Cannot be determined

27. A mathematics teacher conducted two tests. 30% of students passed in both tests and 48% of the students passed in the first test. What percentage of the students passed the second test given that they have already passed the first test?

- A. 57%
- B. 62.5%
- C. 65%
- D. 55%
- E. None of these

28. How many 7-digits numbers can be formed by using the digits 1, 2, 0, 2, 4, 2 and 4?

- A. 720
- B. 360
- C. 420
- D. 120
- E. 620

29. P and Q sit in a ring arrangement with 10 persons. What is the probability that P and Q will sit together?

- A. $\frac{2}{11}$
- B. $\frac{3}{11}$
- C. $\frac{4}{11}$
- D. $\frac{5}{11}$
- E. None of these

30. Bag A contains 3 different color tiles.i.e, Yellow, white and brown. In that, there are 12 yellow tiles, 8 white tiles and X brown tiles. The probability of choosing Brown tiles $\frac{2}{7}$. In Another Bag B, it contains, 12 blue tiles and number of red tiles was equal to five more tiles than brown tiles in Bag A.

What is the probability of not choosing white color tiles in Bag A?

- A. $\frac{2}{7}$
- B. $\frac{3}{7}$
- C. $\frac{5}{7}$
- D. $\frac{1}{7}$
- E. None of these

31. How many arrangements of the letters of the word 'BENGALI' can be made?
I. If the vowels are never come together II. If the vowels are to occupy only odd places

- A. I.620 II.576
- B. I.576 II.720
- C. I.720 II.620
- D. I.4320 II.576
- E. I.840 II.576

32. A question paper consists of 10 questions divided into two parts I and II. Each part contains five questions. A candidate is required to attempt six questions in all of which at least 2 should be from part I and at least 2 from part II. In how many ways can the candidate select the questions if he can answer all questions equally well?

- A. 240
- B. 200
- C. 300
- D. 250
- E. 100

33. The Indian Cricket team consists of 16 players. It includes 2 wicket keepers and 5 bowlers. In how many ways can a cricket team of eleven be selected if we have to select 1 wicket keeper and at least 4 bowlers?

- A. 1090
- B. 1290
- C. 1200
- D. 1920
- E. 1092

34. In a mathematics class of 40 students, 24 boys and 16 girls. On a unit test, 4 boys 6 girls made an A grade. If a student is chosen at random from the class, what is the probability of choosing a boy or A grade student'?

- A. $\frac{2}{5}$
- B. $\frac{3}{5}$
- C. $\frac{1}{4}$
- D. $\frac{3}{4}$
- E. None of these

35. A six letter word is to be formed by using at least two vowels in it. How many such words can be formed (not necessarily meaningful) if all the letters in word are different?

- A. 53349120
- B. 53439120
- C. 53431920
- D. 54339120
- E. 53493120

36. A coin is tossed twice if the coin shows head it is tossed again but if it shows a tail then a die is tossed. If 8 possible outcomes are equally likely. Find the probability that the die shows a number greater than 4, if it is known that the first throw of the coin results in a tail.

- A. $\frac{2}{3}$
- B. $\frac{1}{4}$
- C. $\frac{2}{5}$
- D. $\frac{1}{3}$
- E. None

37. A, B and C try to hit a target. A can hit the target 1 times in 3 shots, B 3 times in 5 shots and C 2 times in 5 shots. Find the probabilities of following events: Two of them hit

- | | |
|---------|-----|
| A. | 7/9 |
| B. | 2/3 |
| C. | 1/3 |
| D. | 1/5 |
| E. None | |

38. Probability of grasshopper eating grass = $1/5$

Probability of frog eating grasshopper = $1/6$

Probability of snake eating frog = $1/7$

Probability of hawk eating snake = $1/8$

Probability of man eating hawk = $1/9$

What is the probability of a man eating a hawk who has eaten a snake which had consumed a frog who ate a grasshopper which didn't eat grass?

- A. $\frac{1}{756}$
- B. $\frac{1}{3780}$
- C. $\frac{1}{4096}$
- D. $\frac{1}{2048}$
- E. None of these

39. For the FIFA world cup, Paul the octopus has been predicting the winner of each match with amazing success. It is rumored that in a match between 2 teams A and B, Paul picks A with the same probability as A's chances of winning. Let's assume such rumors to be true and that in a match between Ghana and Bolivia; Ghana the stronger team has a probability of $2/3$ of winning the game. What is the probability that Paul will correctly pick the winner of the Ghana-Bolivia game?

- A. $1/9$
- B. $4/9$
- C. $5/9$
- D. 1
- E. None of these

40. A car manufacturer produces only red and blue TCS Models which come out of the final testing area at random. What are the odds that five consecutive cars of same color will come through the test area at any one time?

- A. $1/16$
- B. $1/125$
- C. $1/32$

- D. $\frac{1}{25}$
- E. $\frac{1}{64}$

41. What will be the 55th word in the arrangements of the letters of the word PRANKED?

- A. AEDNPKR
- B. ADENKPR
- C. ADNKEPR
- D. ANDEPRK
- E. ANDPERK

42. An organization has 3 committees, only 2 persons are members of all 3 committee but every pair of committee has 3 members in common. What is the least possible number of members on any one committee?

- A. 4
- B. 5
- C. 6
- D. 7
- E. None of these

43. Mr and Mrs Smith have invited 9 of their friends and their spouses for a party at the Waikiki Beach resort. They stand for a group photograph. If Mr Smith never stands next to Mrs Smith (as he says they are always together otherwise). How many ways the group can be arranged in a row for the photograph?

- A. $20!$
- B. $19! + 18!$
- C. $18 \times 19!$
- D. $2 \times 19!$
- E. None of these

44. In a three digit number, the middle digit equals the average of extreme digits. The sum of its digits is 9. How many possibilities can it take?

- A. 8
- B. 6
- C. 7
- D. 4
- E. No possibility

45. There are two boxes, one containing 10 red balls and the other containing 10 green balls. You are allowed to move the balls between the boxes so that when you

choose a box at random and a ball at random from the chosen box, the probability of getting a red ball is maximized. This maximum probability is:

- A. $\frac{1}{2}$
- B. $\frac{14}{19}$
- C. $\frac{37}{38}$
- D. $\frac{3}{4}$
- E. $\frac{2}{3}$

46. Deekshitha has 5 patiyala in her wardrobe. One of them is white the second is blue, the third green, the fourth is yellow and the last is pink . In her wardrobe, she also has 6 tops. One of them is white and the other 5 are black. she opens her wardrobe in the dark and picks out one top and one patiyala pair without examining the colour. What is the likelihood that neither the top nor the patiyala is white?

- A. $\frac{5}{9}$
- B. $\frac{4}{9}$
- C. $\frac{2}{3}$
- D. $\frac{1}{3}$
- E. None of these

47. A person has 2 bags. He has 3 red and 4 white balls in the first bag, and 5 red and 6 white balls in second bag. What is the probability of getting one white ball from the two bags?

- A. $\frac{43}{77}$
- B. $\frac{42}{77}$
- C. $\frac{31}{77}$
- D. $\frac{84}{77}$
- E. None of these

48. From a bag contains 6 apples, 4 mangoes, and 3 bananas, 5 fruits are to be selected. In how many ways selection can be done if in the five fruits, there should always be at least 1 apple, 1 Mango, and 1 banana and the number of same type of fruits should not be selected in even number?

- A. 240 ways
- B. 446 ways
- C. 336 ways
- D. 348 ways
- E. None of these

49. A box contains x red balls and 5 pink balls. If the probability of taking 2 pink balls is $\frac{5}{33}$, then find the number of red balls?

- A. 4
- B. 8
- C. 7
- D. 6
- E. 5

50. In Delhi University a committee of 6 professors is to be selected from a group of 7 ladies professors and 6 gents' professors. In how many ways can this be done, If the gents should not be outnumbered?

- A. 251
- B. 1058
- C. 2542
- D. 1010
- E. None of these

Probability – Hard

1. A bag contains 35 balls of three different colors viz. red, orange and pink. The ratio of red balls to orange balls is 3 : 2, respectively and probability of choosing a pink ball is $\frac{3}{7}$. If two balls are picked from the bag, then what is the probability that one ball is orange and one ball is pink?

- A. $\frac{24}{119}$
- B. $\frac{60}{119}$
- C. $\frac{96}{595}$
- D. $\frac{3}{17}$
- E. None of these

2. A tiffin box contains x pink and $(x - 4)$ yellow toffees and another tiffin box contains $(x - 1)$ yellow and $(x - 3)$ pink toffees. If one of the tiffin box is selected at random and 2 toffees are drawn at random from the box thus selected, the probability that the two toffees are of different colours is $\frac{67}{132}$. Find the total number of toffees in the first tiffin box?

- A. 8
- B. 12

- C. 10
- D. 16
- E. None of these

3. There are three events X,Y and Z, one of which must and only can happen. If the odds are 7:4 against X, 5:3 against Y, the odds against Z must be:

- A. 65/23
- B. 47/51
- C. 27/65
- D. 37/53
- E. None of these

4. A three-digit number is chosen at random. What is the probability that all the digits are distinct, the digits at odd places are odd and the digits at even places are even?

- A. 1/99
- B. 1/9
- C. 3/100
- D. 2/99
- E. None of these

5. Nikesh forms a code for locker of two distinct digits selected from 0, 1, 2... 9 such that the first digit of the code is nonzero. The code, handwritten on a slip, can however potentially create confusion, when read upside down-for example, the code 81 may appear as 18. How many codes are there for which no such confusion can arise?

- A. 80
- B. 78
- C. 71
- D. 69
- E. None of these

6. A Bag contains some White and Black Balls. The probability of picking two white balls one after other without replacement from that bag is $\frac{14}{33}$. Then what will be the probability of picking two Black balls from that Bag if bag can hold maximum 15 balls only?

- A. $\frac{11}{32}$
- B. $\frac{14}{33}$
- C. $\frac{7}{33}$
- D. $\frac{1}{11}$

E. Cannot be determined

7. If the digits of a 2 digit number are interchanged then original number is greater than four times the new number so obtained. How many such natural numbers are there? Assume that '0' cannot be at the unit place of the number.

A. 3

B. 4

C. 5

D. 6

E. None of these

8. In bag A, there are 2 Black balls, 3 Red balls & 5 green balls. In bag B, there are 6 red balls, 5 black balls & x green balls. Two balls are drawn from both bags. The probability of getting 2 green balls from bag A is $\frac{52}{315}$ more than that from bag B. What is x?

A. 3

B. 4

C. 5

D. 6

E. None of these

9. Six friends decide to share a big cake. Since all of them like the cake, they begin quarrelling who gets to first cut and have a piece of the cake. One friend suggests that they have a blindfold friend choose from well shuffled set of cards numbered one to six. You check and find that this method works as it should simulate a fair throw of a die. You check by performing multiple simultaneous trials of picking the cards blindfold and throwing a die. You note that the number shown by the method of picking up a card and throwing a real world die, sums to a number between 2 and 12.

Which total would be likely to appear more often – 8, 9 or 10?

A. 8

B. All are equally likely

C. 9

D. 10

E. None of these

10. A circular dartboard of radius 1 foot is at a distance of 20 feet from you. You throw a dart at it and it hits the dartboard at some point Q in the circle. What is the probability that Q is closer to the centre of the circle than the periphery?

- A. 0.75
- B. 1
- C. 0.5
- D. 0.25
- E. 0.125

11. A bag has 9 balls – each of them is either white, yellow or Black. In every trial, one ball is drawn and put back in the bag before the next trial. The probability of getting a white ball in two consecutive trials is $\frac{1}{81}$. The probability of getting two yellow balls in two consecutive trials is $\frac{4}{9}$. What is the probability of getting balls of three different colours in three consecutive trials?

- A. $\frac{4}{81}$
- B. $\frac{4}{243}$
- C. $\frac{4}{9}$
- D. $\frac{8}{27}$
- E. $\frac{8}{81}$

12. There are 30 balls mixture of red, yellow and blue in the ratio of 2: 3: 1. Box A contains 20% of the red balls, 40% yellow balls and 20% of blue balls and remaining number of red, blue and yellow be box B. What is the difference between the probability of two yellow balls drawn from A and three red balls drawn from B?

- A. $\frac{397}{1140}$
- B. $\frac{407}{1140}$
- C. $\frac{417}{1140}$
- D. $\frac{427}{1140}$
- E. None of these

13. In an IBPS interview, there are some candidates (5 boys and x girls). If two candidates are to be selected randomly then the probability that both are girls is 16.67%. If the same number of candidates is to be selected randomly, then what is the probability that at least one is boy?

- A. $\frac{5}{6}$

- B. $\frac{5}{18}$
C. $\frac{4}{9}$
D. $\frac{13}{18}$
E. None of these

14. Bag A contains 8 red marbles and 10 green marbles & Bag B contains 10 red marbles and 13 green marbles. If a marble is transferred from bag A to bag B and a marble is drawn from bag B, then find the probability that drawn marble is red in colour?

- A. $\frac{47}{108}$
B. $\frac{22}{57}$
C. $\frac{23}{54}$
D. $\frac{43}{108}$
E. None of these

15. In a biased lottery, tickets are numbered from 1 to 10. The probability of getting an even number is twice the probability of getting an odd number and the probability of getting a multiple of 4 is thrice the probability of getting rest of the even numbers. Find the probability of getting rest of the even numbers.

- A. $\frac{3}{7}$
B. $\frac{2}{5}$
C. $\frac{1}{3}$
D. $\frac{1}{6}$
E. None of these

16. 3 friends hired a horse for 5 hours for riding. If in one time, one person can ride for exactly one hour then what is the probability that all the friends ride the horse but none of them ride for more than two hours?

- A. $\frac{2}{27}$
B. $\frac{15}{81}$
C. $\frac{9}{100}$
D. $\frac{10}{27}$

E. None of these

17. A bag P contains 12 green and 15 blue balls. A ball is randomly drawn from the bag P and put in a bag Q which already contains red, blue and green balls in the ratio of 2 : 1 : 2 respectively. Now a ball is randomly drawn from the bag Q and the probability that the ball drawn is green is $\frac{65}{162}$. Find the total number of balls in the bag Q initially.

A. 20

B. 25

C. 30

D. 35

E. None of these

18. The number of players in a basketball team having 6 players has to be selected from 9 males and 'x' females. What will be the value of 'x' if the number of ways to select the team having exactly two female players is 1890?

A. 8

B. 9

C. 7

D. 5

E. 6

19. A bag contains 8 black balls, 6 green balls, and some red balls. The probability of drawing a red ball and a black ball from the bag is $\frac{22}{75}$. If a person draws 3 balls randomly from the bag then find the probability that at least 2 balls are of red colour.

A. $\frac{121}{320}$

B. $\frac{187}{460}$

C. $\frac{97}{460}$

D. $\frac{197}{460}$

E. None of these

20. In a cricket team squad, there are 7 bowlers and 8 batsmen. Four players are to be kept in Tier-I and another four players are to be kept in Tier-2. A selection committee chooses players for Tier-1 first and then chooses players for Tier-2. What is the probability that players in each Tier comprises of either bowlers or batsmen only?

- A. $\frac{493}{45045}$
 B. $\frac{497}{45045}$
 C. $\frac{49}{435}$
 D. $\frac{97}{945}$
 E. None of these

21. A box consists of 15 balls numbered from 0 to 14. A boy picked a ball from the box and kept it in the bag after noting its number. He repeated this process 2 more times. What is the probability that the ball picked first by the boy is numbered higher than the ball picked second and the ball picked second by the boy is numbered higher than the ball picked third?

- A. $\frac{51}{3375}$
 B. $\frac{67}{3375}$
 C. $\frac{2197}{3375}$
 D. $\frac{329}{3375}$
 E. None of these

22. In a running race competition involving some boys and girls of an apartment, every member had to play exactly one race with every other member. It was found that in 10 races both the players were boys and in 45 races both the members were girls. Find the number of races in which one member was a boy and other was a girl.

- A. 50
 B. 40
 C. 30
 D. 20
 E. None of these

23. Probability of taking alternate balls of red and blue balls is $\frac{308}{4845}$. 4 balls are drawn one by one and not replaced. If there are 12 red balls and total number of balls is 20, which of the following can be found?

- I. Probability of taking both red balls
 II. Probability of taking one blue ball
 III. Probability of taking 1 ball
 A. Only III
 B. Only I
 C. Only II
 D. Only I and III

E. All I, II and III

24. There are 2 bags. 1st bag contains 6 white and 6 blue balls. 2nd bag contains 5 white and 7 black balls. One ball is taken at random from first bag and put to second bag without noticing its colour. Now a ball is chosen at random from 2nd bag. What is the probability of the second ball being a white colour ball?

A. $\frac{11}{13}$

B. $\frac{6}{13}$

C. $\frac{5}{13}$

D. $\frac{5}{12}$

E. None of these

25. On one day, Kajal is twice as likely to go to basketball, as she is likely to go for football practice. Given that Kajal necessarily goes for exactly one of the two activities each day, what is the probability that she goes to the basketball on 5 days out of 7 consecutive days of a specified week?

A. $\frac{28}{729}$

B. $\frac{4}{2187}$

C. $\frac{224}{729}$

D. $\frac{16}{2187}$

E. None of these

26. Find the sum of all the numbers that can be formed by using all the digits 6, 7, 8, 0 and are divisible by 12?

A.

50260

B. 43842

C. 60540

D. 48046

E. None of these

27. A box consists of 15 balls (Blue + Red + Green). Two balls are picked from the box randomly without replacement. The probability of getting neither Blue ball nor Green ball is $\frac{2}{35}$. Find the total number of blue and green balls.

A. 4 balls

B. 10 balls

C. 12 balls

D. 11 balls

E. 9 balls

28. Five boys and some number of girls are sitting in a row. The probability that all girls are sitting together is $\frac{1}{42}$. What is the total number of girls in the group?

- A. 2
- B. 5
- C. 6
- D. 4
- E. None of these

29. A bag contains 3 red balls and ----- blue balls and 2 black balls. Three balls are drawn at random from the bag and the probability of that balls are blue is -----

- I. 4, $\frac{1}{11}$
- II. 3, $\frac{1}{15}$
- III. 5, $\frac{1}{12}$
- IV. 6, $\frac{1}{4}$
- A. All I, II, III and IV
- B. Only I and IV
- C. All I, II and IV
- D. Only III
- E. Only III and IV

30. A factory produces four different types of products, P, Q, R and S. The chances that a random piece of products P, Q, R and S is found to be defective are 20%, 30%, 5% and 10%, respectively. During an inspection, one piece of each product is randomly selected. What is the probability that exactly three of them are found to be defective?

- A. 0.005
- B. 0.0103
- C. 0.0124
- D. 0.0057
- E. 0.0178

31. In a chess competition involving some boys and girls of a school, every student had to play exactly one game with every other student. It was found that in 45 games both the players were girls, and in 190 games both were boys. The number of games in which one player was a boy and the other was a girl is

- A. 200
- B. 216
- C. 235
- D. 256

E. 228

32. There are 10 seats around a circular table. If 8 men and 2 women have to be seated around a circular table, such that no two women have to be separated by at least one man. If P and Q denote the respective number of ways of seating these people around a table when seats are numbered and unnumbered, then P : Q equals :

- A. 9 : 1
- B. 72 : 1
- C. 10 : 1
- D. 8 : 1
- E. 20 : 1

33. In a four digit number, first digit is greatest and last digit is smallest. Sum of middle two digits is even. How many such four digit numbers, having all digits different, can be there if first digit is 9?

- A. 56
- B. 60
- C. 68
- D. 72
- E. 79

34. A man has to travel from Allahabad to Lucknow and then from Lucknow to Kolkata. If there are 5 routes from Allahabad to Lucknow and 4 routes to go from Lucknow to Kolkata, then how many options are available for the man to travel from Allahabad to Kolkata via Lucknow?

- A. 5^4
- B. 20
- C. 4^5
- D. $5^4 + 4^5$
- E. None of the above

35. The number of ways in which 20 different flowers of two colors can be set alternately on a necklace, there being 10 flowers of each colour, is

- A. $9! \times 10!$
- B. $5(9!)^2$
- C. $(9!)^2$
- D. $(18!)^2$
- E. None of these

36. Six different pencils and three bags are taken. Each pencil is to be put in one of these bags. No bag should remain empty and all bags should not have same number of pencils. In how many ways can this be done?

- A. 729
- B. 537
- C. 444
- D. 637
- E. 669

37. Two bags A and B contain books of different writers. In bag A, there are 4 books of Denise Lawrence, 3 books of Paulo Coelho and 5 books of Ruskin Bond while bag B contain 4 books of Denise Lawrence, 'x' books of Paulo Coelho and 5 books of Ruskin Bond. If the probability of drawing two Paulo Coelho's book from bag A is $(9/286)$ more than the probability of drawing 3 Paulo Coelho's book from bag B, then find the value of 'x'.

- A.4
- B.5
- C.6
- D.7
- E.8

38. In a bag, there are 8 black balls and 12 yellow and green balls. If the probability of choosing a green ball from the bag is 0.35 then, find the probability of choosing two yellow balls from the bag if the ball chosen is not replaced.

- A. $\frac{2}{19}$
- B. $\frac{4}{95}$
- C. $\frac{1}{19}$
- D. $\frac{6}{95}$
- E.

None of these

39. In a bag, there are 30 balls of three different colors i.e. red, blue and brown. Number of red balls are 6 more than that of blue and ratio of number of red to brown balls is 7 : 4. If all blue balls are taken away then find the probability of getting 3 red balls out of the remaining balls in the bag.

- A. $13/66$
- B. $1/5$
- C. $26/105$

- D. $\frac{13}{55}$
E. None of these

40. In a bag which contains 40 balls, there are 18 red balls and some green and blue balls. If two balls are picked up from the bag without replacement, then the probability of the first ball being red and second being green is $\frac{3}{26}$. Find the number of blue balls in the bag.

- A. 16
B. 12
C. 10
D. 14
E. 8

41. There are two bags –A & B. Bag-A contains 10 red balls and 5 white balls and Bag-B contains 9 white balls and 6 red balls. If a bag is chosen randomly and two balls are drawn (without replacement) from it , then find the probability of getting at least 1 red ball.

- A. $\frac{82}{105}$
B. $\frac{38}{105}$
C. $\frac{79}{105}$
D. $\frac{97}{105}$
E. None of these

42. Ratio of the apple to orange from box A and B is 3: 2 and 2: 3 respectively. 25% of the orange from box A is rotten and 50% of the apple from box B is rotten. Ratio of the total number of fruits from A to B is 1:1 and the total number of good fruits from A and B is 17 From the statement given in the above question which of the following can be determined.

- I. What is the probability of two apples drawn from box A?
II. Total number of orange from A
III. What is the probability of one rotten apple and one good orange drawn from box B?
IV. What is the probability of one rotten apple drawn from box B and one rotten orange drawn from box A?
- A. All I, II, III and IV
B. Only I, II and IV
C. Only III and I
D. Only I, II and III

E. Cannot be determine

43. A woman goes to visit the house of some friend whom she has not seen for many years. She knew that besides the two married adults in the household, there are two children of different ages, But she does not know their genders. When she knocks on the door of the house, a boy answer. What is the probability that the younger child is a boy?

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

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

C. $\frac{1}{3}$

D. $\frac{1}{4}$

E. None of these

44. In a bag, there are 25 balls of three different color i.e. white, pink and blue. Number of white balls is 4 more than the number of blue balls. If the probability of choosing a pink ball from the bag is 0.2 then, find the probability of choosing a ball of each color if the ball chosen is not replaced.

A. $\frac{4}{23}$

B. $\frac{24}{115}$

C. $\frac{5}{23}$

D. $\frac{27}{95}$

E. None of these

45. There are 11 bags numbered 1, 2, 3,, up to 11. Each bag is to be filled with either red balls or either blue balls such that at least one bag contains blue balls and the bags containing blue balls are alternatively numbered. Find number of ways in which it can be done?

A. 32

B. 48

C. 64

D. 36

E. 28

46. A bag contains seven red balls, 'a' green balls & 'b' yellow balls. If one ball taken out from bag, then probability of being it green is $\frac{5}{16}$, while being it yellow is $\frac{1}{4}$. Find difference between number of green and yellow balls in that bag?

A. 1

B. 0

C. 2

D. 4

E. 3

47. A box contains 'x' blue balls, 5 red balls and 5 black balls. If probability of choosing 2 blue balls from the bag is 0.125, then find the total number of balls in the box?

- A. 25
- B. 15
- C. 16
- D. 18
- E. 21

48. In an examination of two papers there are 'x' number of students out of which 180 students passed only first paper while 320 students passed only second paper. The probability of selecting a student failed in both subjects is $\frac{1}{14}$. Find which options will correct regarding total number of students appeared in examination if 150 students passed both the papers.

- A. $400 < x < 680$
- B. $440 < x < 460$
- C. $480 < x < 510$
- D. $520 < x < 560$
- E. $580 < x < 720$

49. Two bags A and B contain 7 red and 6 blue balls respectively. Some blue balls from bag B are taken out and kept into bag A. If probability of selecting two blue ball from bag A is $\frac{1}{15}$, find the number of blue balls drawn from bag B.

- A. 2
- B. 4
- C. 3
- D. 5
- E. 6

50. In a game, Abhishek and Arun toss a fair coin one after the other starting with Abishek. The one who gets a 'Head' first wins the game and the game ends there. If both of them don't get 'Head' after three tries each, the game ends in a draw. What is the probability of Abishek winning the game>

- A. $\frac{21}{64}$
- B. $\frac{7}{8}$
- C. $\frac{21}{32}$

D. $\frac{7}{16}$

E. None of these

