1. A number between 0 and 1 that is use to measure uncertainty is called:
(a) Random variable (b) Trial (c) Simple event   (d) **Probability**

2. Probability can be expressed as:
(a) Rational   (b) Fraction (c) Percentage   (d) **All of the above**

3. The probability of an event cannot be:
(a) Equal to zero   (b) Greater than zero (c) Equal to one (d) **Less than zero**

4 What is the probability of getting a sum 9 from two throws of a dice?

(a) 1/36 **(b) 4/36** (c) 5/36   (d) 0

5 Probability of impossible events is_____.

(a) 0 (b) ½ (c) ¼ (d) 1

6 If $P(A) = 0.7, \ P(B) = 0.2$ and $P(A \cap B) = 0.5$ then $P(A \cup B) =$

(a) 0.6 (b) 0.9 (c) 2 **(d) 0.4**

7 Which of these numbers can be a value of probability distribution of a discrete random variable

(a) 2 **(b) 0.5** (c) 3 (d) -0.5

8 If X is a discrete random variable, and its p.m.f is given by $f(x) = (x + 2)/25$, for x= 1,2,3,4,5, then $P(X \le 4)$ is

(a) 18/25 (b) 2/25 (c) 10/25 (d) 6/25

9 Find the variance of getting head when two coins are tossed

(a) 1 **(b) 0.5** (c) 0.8 (d) 3.5

4. If C is a constant (non-random variable), then E(C) is:
              (a)   0   (b)   1   (c) f(C) **(d)   C**

5. Which of the following is not possible in probability distribution?
    (a) $p(x) \ge 0$ (b)$\sum p(x) = 1$ (c) $\sum xp(x) = 2$ **(d)$p(x) = -0.5$**

6. The probability distribution of continuous random variable is classified as
       (a) probability mass function
        (b) probability density function
       (c) posterior mass function
       (d) continuous mass function

7. If the random variable takes negative values, then the probability of negative values will have:
       (a) Positive values   (b) Negative Values   (c) Zero value   (d) Difficult to tell

8. A quantity resulting from an experiment that, by chance, can assume different values is called:

(a) Random Experiment   **(b) Random variable**   (c) Random sample   (d) Random Process

9.   A variable which can assume all values in the range of a random variable, is called:

   (a) Finite   (b) Infinite   **(c) Continuous** (d) Discrete

10.   If the function $f(x) = 4x$ represents a probability density function, then which of the following could be the domain of f?

A $0 < x < \sqrt{2}$

B $0 < x < 1/\sqrt{2}$

C $-0.5 < x < 0.5$

D $0 < x < 0.25$

11. Which of following is correct?

(a) $Var(x) = E(x) - E(x^2)$
(b) $Var(x) = E(x^2) - E(x)$
(c) $Var(x) = E(x^2) - [E(x)]^2$
(d) $Var(x) - [E(x^2)]^2 - E(x^2)$

12. Two events A and B are _____ if the occurrence (or non-occurrence) of one event has no effect on the probability of the occurrence (or non-occurrence) of the other event. Which of the following best completes the previous sentence?

(a) statistically independent
(b) mutually exclusive
(c) statistically dependent
(a)   none of the above

13. What is the probability of getting exactly two "tails" in four tosses of a fair coin?

(a) 50 per cent
(b) 3/8
(c) 5/8
(d) none of the above

14. Determine the number of ways that four objects can be chosen from a group of ten.

   (a) P(10, 4)
   (b) $4C_{10}$
   (c) C(10,4)
   (d) none of the above

15. What kind of distribution are the binomial and Poisson distributions?
A) Discrete

B) Continuous

C) Both discrete and continuous

D) Neither discrete or continuous

16. If x is a normal variate with mean 20 and variance 64, the P[12≤X≤2] is

(a) 0.4332   (b) 0.1189   (c) 0.7475   (d)5.   (1st convert to s.n.d. Then see value from table)

17. The normal distribution is a limiting case of poisson distribution when parameter.

(a) $\lambda \to 0$ (b) $\lambda \to 1$ **(c) $\lambda \to \infty$**   (d) None of the above

18. The random variable X has the following distribution:

X	1	2	4	10
P(x)	0.3	0.2	0.2	?

Find P(X = 10)

a. 0.2   b. 0.5   c. 0.3   **d. 0.1**

19. A letter from the English alphabet is chosen at random. Probability that the letter so chosen precedes m and is a vowel is

(a) 1/26 (b) 3/26 (c) 5/26 (d) 7/26

20. An integer is chosen at random from two hundred digits. Probability that the integer is divisible by 8 is

(a) ¼ (b) ⅕ (c) 1/7 (d) ⅛

21. In the simultaneous tossing of two perfect dice, the probability of obtaining 4 as the sum of the resultant faces is

(a) ⅓ (b) 1/12 (c) ¼ (d) ⅙

22. A continuous random variable X has a p.d.f. f(x) = 3 x2

Q28. . Two cases are said to be _____, when they include all possible cases.

(a) Equally likely   (b) Mutually Exclusive   **(c) Exhaustive**   (d)None of these

Q29. For any three events A,B and C find P(AUB /C)

(a) P(A/C)+P(B/C)+P(C)   (b) P(A/C)+P(B/C) – P(AB/C)

(c)P(A/C)+P(B/C)+P(A)   (D)None of these

Q30. If X,Y AND Z are three independent stochastic variables then E(XYZ) is equal to

(a) E(X)+E(Y)+E(Z)   **(B) E(X)E(Y)E(Z)**   (C) 1- E(X)E(Y)E(Z)   (D)None of these

Q31. A formula or equation used to represent the probability' distribution of a continuous random variable is

called:

(a) Probability distribution (b) Distribution function

(c) Probability density function (d) Mathematical expectation

Q32. Given E(X) = 5 and E(Y) = -2, then E(X - Y) is:
    (a) 3   (b) 5   (c) 7   (d) -2

Q33. The height of persons in a country is a random variable of the type:
    (a) Discrete random variable   **(b) Continuous random variable**
    (c) Both (a) and (b)   (d) Neither (a) and (b)

Q34 In binomial distribution if number of trial is 16 and probability of success is 1/2. Find mean.
(a) 8 (b) 9 (c) 4 (d) 10

Q35 With usual notation, mean of Poisson distribution is

(a) λ (b) $\lambda(1-\lambda)$ (c) λ^2 (d) none of these

Q36 The range of normal distribution is

(a) 1 to 10 **(b)** $-\infty$ to ∞ (c) 1 to ∞ (d) none of these

Q37. A box contains 2 red, 3 black and 4 blue balls. 3 balls are randomly drawn from the box. What is the probability that the balls are of different colors?
(a) **2/7**   (b) 3/7   (c) 1/7   (d) 6/7

Q38. A single letter is selected at random from the word PROBABILITY. The probability that it is a vowel is
(a) 3/11   (b) **4/11**   (c) 6/11   (d) 0

Q39. A card is drawn from a well shuffled pack of 52 cards. Find the probability of a jack.
(a) 5/52   (b) **4/52**   (c) 2/52   (d) 6/52

Q40. The coefficient of regression of Y on X is denoted by
(a)   (b)   (c)   (d)

Q41. Ten coins are thrown simultaneously. Find the probability of getting at least 7 heads.
(a) 175/1024   (b) **176/1024**   (c) 121/1024 (d) 111/1024

Q42. Normal distribution is a
    (a) **Continuous distribution** (b) discrete distribution (c) both   (d) none of these

Q43. A random variable X has the following probability function:
P(x): 0   K   2K   2K   3K k^2 $2K^2$ $7K^2+K$
Find K.
(a) **1/10**   (b) 2/7   (c) 3/10   (d) 4/5

Q44. A variable which can assume finite or countably infinite number of values is known as:

(a) Continuous   (b) **Discrete**   (c) Qualitative   (d) None of them

Q45.All distribution functions are monotonically

(a) Decreasing   (b) non-increasing   (c) **non-decreasing** (d) none of these

46-If a random variable X satisfies Binomial distribution with mean 10 and p=0.2,then value of n is:

(a)50   (b)60   (c)70   (d)100

47-If a random variable X satisfies Poisson distribution with n= 100 and p=0.2,then value of mean is:

    (a) 25   (b)30   **(c)20**   (d) 10

48-What is shape of a normal curve:

    (a) **Bell Shaped**   (b) Skewed to right   (c) Skewed to left   (d)none of these

49-What are the number of elements in the sample space when you flip three coins together.

    (a) **8**   (b) 6   (c) 12   (d) 2

50- Find the probability of getting exactly 2 heads when you flip 2 coins together.

    (a) 1   (b) 0   (c) ⅓   **(d)¼**

51-what is the probability of getting wet from rain when you are sitting under a roof.

    (a) 1   (b) 0   ©-1   (d)1/2

52-A discrete random variable has which type of values:

    (a) Infinite   **(b) Finite**   (c) None of these

53- The total area under the curve for the continuous random variable is:

    (a) 1   (b) 0   (c) 2   (d) 3

54-The probability of getting a king out of a deck of 52 cards is:.

    (a) 4/52   (b) 3/52   (c)5/52   (d) 1/52

55 Given P(A)=2/3, P(B)=3/8 and P(AB)=1/4, then A and B are:

 (a) Independent (b) Dependent (c) Mutually exclusive (d) Equally likely

56.If A and B are two mutually exclusive and exhaustive events and P(A)=3P(B), then P(B) is equal to: (a) 1/2   (b) 2/3 (c) ⅓ **(d) ¼**

57.Five cards are selected at random from a pack of 52 cards with replacement. The possible combinations are: **(a) 52**   (b)   (c) 52 x 52   (d) (b)

58. Suppose that two cards are drawn at random from a deck of cards. Let X be the number of aces obtained. Then the value of E(X) is :

(a) 37/221   (b) 5/13   (c) 1/13   (d) 2/13.

59.   A random variable X has the probability density function: k(2-x), 0<x<2 and =0 ELSEWHERE. Then k is:

a)   3/4   **b)1/2**   c) 0   d) 1

60If 9 is a constant (non-random variable), then E(9) is:

(a) 0   b) 81   c) 3   **d) 9**

61.If a normal distribution with μ = 200 have P(X > 225) = 0.1587, then P(X < 175) equal to:

(a) 0.3413   (b) 0.8413   (c) 0.1587   (d) 0.5000

62. A normal distribution has the mean μ =200. If 70 percent of the area under the curve lies to the left of 220, the area to the right of 220 is:

 (a) 0.3   (b) 0.5   (c) 0.2   (d) 0.7

63. If expectation and standard deviation of a binomial variate is 9 and 3/2 respectively then number of trials are:

a)   12   b) 18   c) 15   d) 10

64. In a Discrete probability function f(x) is always

   (a) Non-negative   (b) Negative   (c) One   (d) Zero

65. If X is a random variable and f(x) be the probability function, then subject to the convergence the function $\sum e^{tx} f(x)$ is known as:

   (a) Moment Generating Function
   (b) Probability Generating Function
   (c) Probability Distribution function
   (d) Characteristic function

65. Which of the following is not possible in Probability distribution ?

   (a) $p(x) \geq 0$ (b) $\sum p(x) = 1$ (c) $\sum P(x) = 2$ (d) p(x)=-0.5

66. Regression coefficient are……….of change of origin.

   (a) Dependent   (b) Independent   (c) Not independent   (d) More dependent

67. Var(aX+b)

   (a) ab Var(X)   (b) $\frac{a}{b}$ Var(X)   (c) a^2 Var(X)   (d) a Var(X)

68. In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize.

(a) $\frac{2}{7}$ (b) $\frac{5}{7}$ (c) $\frac{1}{5}$ (d) $\frac{1}{2}$

69. Let A and B be independent events with P(A)=0.7 and P(B)=0.7. Find P(A$\cap$B)?

   (a) 0.49   (b) 4.9   (c) 0.049   (d) None of these

70.Let A and B be independent events with P(A)= 0.2 and P(B)= 0.8. Find P(A/B)?

   (a) 0.2   (b) 0.3   (c) 1.2   (d) None of these

71. The number of trials 'n' is………….in Binomial distribution

   (a)Infinite   (b) Finite   (c)Less than Normal Distribution   (d)Large

72. Correlation Coefficient is the G.M. between the

   (a)Multiple correlation
   (b)Partial correlation
   (c)Regression correlation

(d)Curvilinear regression