SEM 2 STATS Q BANK ON UNIT 5 (BINOMIAL, POISSON , NORMAL DISTRIBUTION)

1. Let x be a random variable following Binomial Distribution with n trials and probability of success as p and that of failure as q , then the variance is given by

    Mark only one oval.

    ◯ A) npq

    ◯ B) np

    ◯ C) pq

    ◯ D) p+ q

2. In Binomial distribution , every trial can result into following number of outcomes.

    Mark only one oval.

    ◯ A) ONLY 1
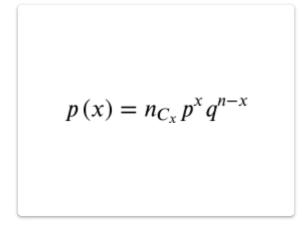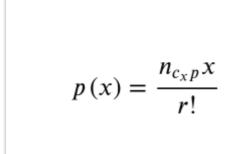
    ◯ B) ONLY 2

    ◯ C) ATLEAST 1

    ◯ D) ATLEAST 2

3. The probability of x successes in a Binomial distribution with n as total number of trials and p as probability of success is

Mark only one oval.

$$p(x) = n_{C_x} \, p^x q^{n-x}$$

(a)

$$p(x) = n_{C_x p} x$$

(b)

$$p(x) = \frac{n_{C_x p} x}{r!}$$

(c)

$$p(x) = p^x q^{n-x}$$

(d)

4. A coin is tossed 5 times . What is the probability of getting all tails ?

Mark only one oval.

- A) 1/5
- B) 1/32
- C) 1/2
- D) 5/32

5.   Which of the following is NOT a condition of the Binomial distribution ?

Mark only one oval.

   ◯ A) Only two possible outcomes

   ◯ B) Have a constant probability of success

   ◯ C) Must have at least five trials

   ◯ D) Trials must be independent

6.   Poisson distribution is a limiting case of

Mark only one oval.

   ◯ (a) Uniform distribution

   ◯ (b) Normal distribution

   ◯ (c) Binomial Distribution

   ◯ (d) Exponential distribution

7.   It is known that on an average three accidents take place on the busy streets of Mumbai everyday.What is the probability that on one fine day no accident takes place ? [Given : e raised to -3 is 0.0498]

Mark only one oval.

   ◯ A) 0

   ◯ B) 1

   ◯ C) 0.0498

   ◯ D) 0.0996

8. If the standard deviation of a Poisson distribution is 3 , its mean is

Mark only one oval.

○ A) 3

○ B) 9

○ C) 0

○ D) 1/3

9. If the standard deviation of a Poisson distribution is 3 , its mean is

Mark only one oval.

○ (a) 3

○ (b) 6

○ (c) 9

○ (d) 1/3

10. A variate x follows Poisson distribution with mean = 5. What is the probability that x = 0 ? [Given e raised to -5 is 0.00674]

Mark only one oval.

○ a) 0.00674

○ b) 0.1348

○ c) 1/5

○ d) 1

11. If the standard deviation of a Poisson distribution is 2 , its mean is

Mark only one oval.

○ A) 2

○ B) 4

○ C)0

○ D) 1/2

12.   A variate x follows Poisson distribution with mean = 2. What is the probability that x = 1 ? [Given e raised to -2 is 0.1353]

Mark only one oval.

○ A) 0.00674

○ B) 0.1348

○ C) 1/5

○ D) 1

13.   The probability curve of normal distribution is

Mark only one oval.

○ (a) non symmetric

○ (b) positively skewed

○ (c) negatively skewed

○ (d) symmetric

14.   Let z be the standard normal variate . If area under the standard normal curve , between z = 0 and z = 2.3 is 0.4893 then what is the probability that z is less than –2.3 ?

Mark only one oval.

○ (a) 0.0107

○ (b) 0.4893

○ (c) 0

○ (d) 1

15. If x follows normal distribution with mean 40 and standard deviation 2 , then value of standard normal variate z for x = 42 is

Mark only one oval.

○ (a) 0

○ (b) 1

○ (c) 2

○ (d) 3

16. Let z be the standard normal variate . If area under the standard normal curve , between z = 0 and z = 1.3 is 0.4032 then what is the area to the right of z = 1.3 ?

Mark only one oval.

○ (a) 0.0968

○ (b) 0

○ c) 0.8968

○ (d) 0.4032

17. Let x be a random variable following Binomial Distribution with n trials and probability of success as p and that of failure as q , then the mean is given by

Mark only one oval.

○ A) npq

○ B) np

○ C) pq

○ D) p+ q

18. A coin is tossed 4 times . What is the probability of getting all tails ?

Mark only one oval.

A) 1/4

B) 1/16

C) 1/2

D) 1

19. The area under probability curve for a standard normal variate z to the right of z = 0 is

Mark only one oval.

A) 0

B) - 0.5

C) 0.5

D) 1

20. The probability curve of normal distribution is

Mark only one oval.

A) non symmetric

B) positively skewed

C) negatively skewed

D) symmetric

21. A coin is tossed 5 times . What is the probability of getting all heads ?

Mark only one oval.

A) 1/5

B) 1/32

C) 1/2

D) 5/32

22. If p and q represents the probabilities of a success and a failure in a Bernoulli's trial , then

Mark only one oval.

○ p + q = 0

○ p + q < 1

○ p + q = 1

○ p = q ,always

23. Total area under normal distribution curve and above X axis is

Mark only one oval.

○ A) less than 1

○ B) more than 1

○ C) exactly 1

○ D) 0.5

24. The shape of normal curve is

Mark only one oval.

○ A) bell shape

○ B) rectangular

○ C) circular

○ D) tree like

25.   For a standard normal variate (z) , if the area between z = 0 and z = 2 is 0.4772 then probability that z is less than 2 is

Mark only one oval.

◯ A) 0.4772

◯ B) 0.9772

◯ C) 2

◯ D) 0.0228

26.   For a standard normal variate (z) , if the area between z = 0 and z = 1 is 0.3413 then probability that z is more than 1 is

Mark only one oval.

◯ A) 0.3413

◯ B) 0.8413

◯ C) 1

◯ D) 0.1587

27.   Let x be a random variate following normal distribution with mean 500 and standard deviation 10 . Then the value of standard normal variate for x = 510 is

Mark only one oval.

◯ A) 1

◯ B) 100

◯ C) 10

◯ D) 11

28. Any normal variate (x) with following parameters can be transformed into standard normal variate z using expression

$$mean = \bar{x} \ and \ s\tan dard \ devialion \ \sigma$$
Mark only one oval.

$$(x - \bar{x})\sigma$$

A)

$$\frac{(x - \bar{x})}{\sigma}$$

B)

$$\frac{(\bar{x} - x)}{\sigma}$$

C)

$$\frac{x - \sigma}{\bar{x}}$$

D)

29. For a standard normal variate (z) , if the area between z = 0 and z = 2 is 0.4772 then probability that z is between 0 and 2 is

Mark only one oval.

A) 0.4772

B) 0.9772

C) 2

D) 0.0228

30. Let x be a random variate following normal distribution with mean 100 and standard deviation 10 . Then the value of standard normal variate for x = 110 is

Mark only one oval.

○ A) 1

○ B) 100

○ C) 10

○ D) 11