

Mathatma Gandhi University
BSc Computer Science IIIrd semester
BCS301: Probability and statistics

MULTIPLE CHOICE QUESTIONS

1. What is $E(ax+b)$?

- a) $ax+b$, b) ax , c) $aE(x)$, d) $aE(x)+b$

2. Write mean in term of moments?

- a) μ_1' , b) μ_2' , c) $\mu_2' - \mu_1'$, d) $(\mu_1')^2$

3. $V(ax+b) = \dots\dots\dots$

- a) $ax+b$, b) $aV(x)+b$, c) $a^2V(x)+b$, d) $a^2V(x)$

4. The scatterness of observation is called $\dots\dots\dots$

- a) Skewness, b) Kurtosis, c) Dispersion, d) Mean

5. For leptokurtic distribution

- a) $\beta_2 < 3$, b) $\beta_2 > 3$, c) $\beta_2 = 3$, d) $\beta_2 = 0$

6. Any measure calculated on the basis of population value is called

$\dots\dots\dots$

a) Parameter, b) Statistic, c) Sample, d) Distribution

7. Give the suitable expression for $E(x-c)^2$

a) $E(x^2)-C^2$, b) $(E(x)-E(c))^2$, c) $V(x) + (E(x)-C)^2$, d) $V(x^2)-C^2$

8. The degree of relation between two variable is called

a) Correlation, b) Regression, c) Correlation Coefficient

9. Correlation coefficient lies between

a) 0 & 1, b) -1 & 1, c) -1 & 0, d) $-\infty$ & ∞

10. If there is no relation between two variables correlation is called

.....

a) Positive, b) Zero, c) Negative, d) Normal

11. What is the maximum value of probability?

a) 1 b) 0 c) -1 d) 2

12. $P(A \cup B) = ?$

a) $P(A)+P(B)$ b) $P(A) \cup P(B)$ c) $P(A) - P(B)$ d) $P(A)+P(B)-P(A \cap B)$

13. In which distribution means variance coincide?

a) Binomial b) Poisson c) Uniform d) Normal

14. Binomial distribution is a _____ distribution?

a) Discrete b) Continuous c) Bivariate

15. _____ distribution is a limiting case of binomial?

- a) Normal b) Poisson c) Uniform d) Gamma

16. What is the mean of the binomial distribution?

- a) n b) p c) np d) npq

17. If A & B are independent events which of the following are true

- a) $P(A \cup B) = P(A) + P(B)$ b) $P(A \cap B) = P(A) \cdot P(B)$
c) $P(A/B) = P(A)/P(B)$ d) $P(A - B) = P(A) - P(B)$

18. What is the MGF of Normal distribution?

- a) $(q + pe^t)^n$ b) $e^{(et-1)}$ c) npq d) $e^{\mu t + t^2 \sigma^2/2}$

19. Find variance in terms of moments?

- a) $\mu_2!$, b) $\mu_1!$, c) $(\mu_1!)^2$ d) $\mu_2! - (\mu_1!)^2$

20. If mean=median=mode in a distribution then which is called _____?

- a) Binomial b) Normal c) Poisson d) Uniform

21. The degree to which numerical data tend to spread about an average value is

- a) Mean, b) Average, c) Dispersion, d) Mode

22. _____ = $Q_3 - Q_1/2$

- a) skewness, b) Quartile deviation, c) Mean deviation, d) Range

23. Mean deviation is least when calculated from _____

a) Mean, b) Median, c) Mode, d) S.D

24. If the variance is 256, then S.D is

a) 16, b) 4, c) 2, d) 512

25. S.D is a measure of _____ dispersion

a) Relative, b) absolute, c) Negative, d) None of these

26. In a symmetrical distribution quartiles are equidistant from _____

a) Mean, b) Median, c) Mode, d) S.D

27. In a negatively skewed distribution,

a) Mean=Median=Mode, b) Mode<Median<Mode, c)
Mode<Median<Mean,

d) Mean<Median<Mode

28. Karl Pearson coefficient of skewness does not depend on

a) Mean, b) Median, c) Mode, d) First quartile

29. In a Binomial distribution variance is $\frac{4}{3}$ and $p(\text{success})$ is $\frac{1}{3}$ find mean?

a) 2, b) 4, c) 6, d) 8

30. Find the variance of the binomial distribution whose mgf is $(0.4e^t + 0.6)^8$

a) 1.92, b) 0.92, c) 0.24, d) 7.86

31. The standard deviation of the sampling distribution of a statistic is called

a) Standard error, b) error, c) population deviation, d) population error

32. What is the standard error of \bar{x} ?

a) σ , b) σ^2 c) σ/\sqrt{n} d) σ^2/n

33. What is the necessary condition for an estimator 't' is unbiased

a) $t=0$, b) $E(t)=0$, c) $E(t)=\theta$, d) $t=\theta$

34. What is the condition that t_1 is more efficient than t_2

a) $t_1 < t_2$, b) $E(t_1) < E(t_2)$, c) $V(t_1) < V(t_2)$, d) $t_1 > t_2$

35. The Rejected region in a statistical test is called -----

a) First type b) Second type c) critical d) none of these

36. The estimator t_n of parameter θ is consistent if t_n converges to..... in probability

a) θ^2 , b) θ , c) 0, d) 1

37. A consistent estimator is unbiased if

a) Small sample, b) large sample, c) finite sample, d) countable sample

38. $(V(t_1) / V(t_2))$ is called.....

a) relative efficiency of t_1 w.r.to t_2

b) relative efficiency of t_2 w.r.to t_1

c) relative sufficiency of t_1 w.r.to t_2

d) relative sufficiency of t_2 w.r.to t_1

39. the hypothesis against the null hypothesis is called -----

a) zero b) test c) alternate d) none of these

40. probability of the test static falling in the critical region is called -----

a) significance b) rejected c) statistical d) none of these

41. In a normal distribution with mean μ and variance 1, $t = 1/n \sum x_i^2$ is an unbiased estimator of _____?

- a) \emptyset b) μ c) μ^2 d) $\mu^2 + 1$

42. Sample mean is the consistent estimator of _____?

- a) population mean b) Sample variance c) Population variance
d) S.D

43. If 't' is consistent estimator of Q, Then t^2 is the consistent estimator of _____ ?

- a) Q b) Q^2 c)

44. For the population $f(x, \mu) = 1/\pi(1 + (x - \mu)^2)$

- a) Sample mean is not a consistent estimator, but sample median is a consistent estimator
b) Sample median is not a consistent estimator, but sample mean is a consistent estimator
c) Sample variance is not a consistent estimator, but population variance is a consistent estimator
d) Sample variance is a consistent estimator, but population variance is not a consistent estimator

45. The kurtosis $\beta_2 =$ _____?

- a) μ^4/μ^2 b) μ^4/μ^1 c) μ^4/μ^2^2 d) μ^4/μ^1^2

46) At $t=0$, $M_X(t) =$ _____?

- a) 0 b) 1 c) -1 d) 2

47. Which distribution is limiting case of binomial distribution as $n \rightarrow \infty, p \rightarrow 0$

- a) Poisson b) normal c) uniform d) gamma

48. In which distribution Mean=Median=Mode?

- a)Poisson b)normal c)uniform d)gamma

49. Variance of k, where k is a constant is

- a) k^2 b) k c) 0 d) 1

50. Expectation of a constant k is

- a) 0 b) 1 c) k d) k^2

ANSWERS

1. d

2. a

3. d

4. c

5. b

6. a

7. c

8. b

9. b

10. b

11. b

12. d

13. b

14. a

15. b

16. c

17. b

18. d

19. d

20. b

21. c

22. b

23. b

24. a

25. b

26. b

27. d

28. d

29. a

30. a

31. a

32. c

33. c

34. c

35. c

36. b

37. b

38. b

39. c

40. a

41. d

42. a

43. b

44. a

45. c

46. b

47. a

48. b

49. c

50. c

