SSC CGL Tier 2 JSO Paper: 100 Most Expected Statistics MCQs with Solutions

Practicing multiple-choice questions is the most effective way to prepare for the SSC CGL Tier 2 JSO Paper. Here's a complete set of 100 high-probability statistics MCQs with solutions to help you revise quickly and score well.

1. The mean of 10 numbers is 25. If one number is removed, the mean becomes 24. The number removed is:
   A) 30
   B) 32
   C) 34
   D) 36
   Answer: C) 34
2. Median divides the data into how many equal parts?
   A) 2
   B) 3
   C) 4
   D) 5
   Answer: A) 2
3. Mode is the value which is:
   A) Maximum
   B) Minimum
   C) Most frequent
   D) Average
   Answer: C) Most frequent
4. Coefficient of Variation (CV) is calculated as:
   A) SD × Mean
   B) SD ÷ Mean × 100
   C) Mean ÷ SD × 100
   D) SD + Mean
   Answer: B) SD ÷ Mean × 100
5. A coin is tossed twice. Probability of at least one head?
   A) 1/4
   B) 1/2
   C) 3/4
   D) 1
   Answer: C) 3/4
6. Two dice are thrown. Probability of sum 7?
   A) 1/12
   B) 1/6
   C) 1/8
   D) 1/36
   Answer: B) 1/6
7. Expected value of a random variable X is:
   A) Σx
   B) $\Sigma P(x)$
   C) $\Sigma x \cdot P(x)$

D) $\Sigma x^2 \cdot P(x)$
Answer: C) $\Sigma x \cdot P(x)$

8. Correlation coefficient r lies between:
A) −2 and 2
B) −1 and 1
C) 0 and 1
D) 0 and ∞
Answer: B) −1 and 1

9. If r = 0.9, correlation is:
A) Strong negative
B) Weak positive
C) Strong positive
D) No correlation
Answer: C) Strong positive

10. Regression line of Y on X: Y = a + bX. What is b?
A) Mean of Y
B) Intercept
C) Regression coefficient
D) SD of X
Answer: C) Regression coefficient

11. Laspeyres Price Index formula is:
A) $\Sigma P_1Q_1 / \Sigma P_0Q_1 \times 100$
B) $\Sigma P_1Q_0 / \Sigma P_0Q_0 \times 100$
C) $\Sigma P_0Q_1 / \Sigma P_1Q_0 \times 100$
D) $\Sigma P_0Q_0 / \Sigma P_1Q_1 \times 100$
Answer: B) $\Sigma P_1Q_0 / \Sigma P_0Q_0 \times 100$

12. Base year index is always:
A) 50
B) 75
C) 100
D) 200
Answer: C) 100

13. Fisher's Ideal Index is:
A) Arithmetic mean of Laspeyres and Paasche
B) Geometric mean of Laspeyres and Paasche
C) Harmonic mean
D) Weighted mean
Answer: B) Geometric mean of Laspeyres and Paasche

14. Objective of sampling is:
A) Measure population exactly
B) Estimate population parameters from a subset
C) Reduce data
D) Increase sample size
Answer: B) Estimate population parameters from a subset

15. Simple random sample means:
A) Equal probability for all items
B) Select first n items
C) Systematic selection
D) Stratified selection
Answer: A) Equal probability for all items

16. Standard error of mean decreases when:
    A) Sample size increases
    B) Sample size decreases
    C) Population size decreases
    D) Population size increases
    Answer: A) Sample size increases
17. Components of time series include:
    A) Trend, Seasonal, Cyclical, Irregular
    B) Mean, Mode, Median
    C) Variance, SD, CV
    D) Probability, Randomness, Mean
    Answer: A) Trend, Seasonal, Cyclical, Irregular
18. Method of least squares is used to:
    A) Find mean
    B) Draw histogram
    C) Fit trend line
    D) Calculate variance
    Answer: C) Fit trend line
19. Moving averages help to:
    A) Identify irregularities
    B) Smooth short-term fluctuations
    C) Calculate SD
    D) Rank data
    Answer: B) Smooth short-term fluctuations
20. In binomial distribution, mean = np, variance =?
    A) np
    B) npq
    C) n^2p^2
    D) $\sqrt{npq}$
    Answer: B) npq
21. For Poisson distribution, mean and variance are:
    A) Equal
    B) Not equal
    C) Mean > Variance
    D) Variance > Mean
    Answer: A) Equal
22. Normal distribution curve is:
    A) Skewed left
    B) Skewed right
    C) Symmetrical about mean
    D) Asymmetrical
    Answer: C) Symmetrical about mean
23. Null hypothesis is:
    A) Statement with effect
    B) Statement of no effect
    C) Alternative hypothesis
    D) Statistical error
    Answer: B) Statement of no effect
24. Type I error occurs when:
    A) Null hypothesis rejected wrongly

B) Null hypothesis accepted rightly
C) Alternative hypothesis rejected
D) Alternative hypothesis accepted wrongly
Answer: A) Null hypothesis rejected wrongly

25. Level of significance denotes:
A) Probability of Type II error
B) Probability of Type I error
C) Power of test
D) Sample size
Answer: B) Probability of Type I error

26. Median of {2, 5, 7, 10, 12}?
A) 5
B) 7
C) 10
D) 12
Answer: B) 7

27. Mean of {4, 8, 6, 10}?
A) 6
B) 7
C) 8
D) 9
Answer: B) 7

28. Standard deviation measures:
A) Central tendency
B) Dispersion from mean
C) Skewness
D) Kurtosis
Answer: B) Dispersion from mean

29. Range is:
A) Difference between max and min
B) Average of max and min
C) Sum of all values
D) Product of max and min
Answer: A) Difference between max and min

30. Probability of drawing an Ace from a deck of 52 cards?
A) 1/13
B) 1/52
C) 1/4
D) 1/26
Answer: A) 1/13

31. Probability of a red card?
A) 1/4
B) 1/3
C) 1/2
D) 2/3
Answer: C) 1/2

32. Probability of getting two heads in two coin tosses?
A) 1/2
B) 1/4
C) 1/8

D) 1
Answer: B) 1/4

33. If events A and B are independent, P(A ∩ B) = ?
A) P(A) + P(B)
B) P(A) × P(B)
C) P(A) – P(B)
D) P(A)/P(B)
Answer: B) P(A) × P(B)

34. Cumulative frequency is:
A) Frequency in class
B) Sum of all frequencies up to that class
C) Average frequency
D) Maximum frequency
Answer: B) Sum of all frequencies up to that class

35. Quartiles divide data into:
A) 2 equal parts
B) 3 equal parts
C) 4 equal parts
D) 5 equal parts
Answer: C) 4 equal parts

36. Deciles divide data into:
A) 5 parts
B) 10 parts
C) 20 parts
D) 100 parts
Answer: B) 10 parts

37. Percentiles divide data into:
A) 10 parts
B) 50 parts
C) 100 parts
D) 25 parts
Answer: C) 100 parts

38. Karl Pearson correlation formula is:
A) Cov(X,Y) / σ_X²
B) Cov(X,Y) / (σ_X × σ_Y)
C) ΣX/ΣY
D) ΣXY
Answer: B) Cov(X,Y) / (σ_X × σ_Y)

39. Rank correlation uses which coefficient?
A) Pearson
B) Spearman
C) Kendall
D) Both B & C
Answer: D) Both B & C

40. Regression coefficient formula: b = ?
A) Cov(X,Y)/Var(Y)
B) Cov(X,Y)/Var(X)
C) Var(X)/Cov(X,Y)
D) Mean(Y)/Mean(X)
Answer: B) Cov(X,Y)/Var(X)

41. If r = −0.8, the correlation is:
A) Strong positive
B) Weak positive
C) Strong negative
D) No correlation
Answer: C) Strong negative

42. Paasche Price Index formula is:
A) $\Sigma P_1Q_1 / \Sigma P_0Q_1 \times 100$
B) $\Sigma P_1Q_0 / \Sigma P_0Q_0 \times 100$
C) $\Sigma P_0Q_1 / \Sigma P_1Q_0 \times 100$
D) $\Sigma P_0Q_0 / \Sigma P_1Q_1 \times 100$
Answer: A) $\Sigma P_1Q_1 / \Sigma P_0Q_1 \times 100$

43. Weighted mean formula is:
A) $\Sigma x / n$
B) $\Sigma w_i x_i / \Sigma w_i$
C) $\Sigma x^2 / n$
D) $\Sigma w_i / x_i$
Answer: B) $\Sigma w_i x_i / \Sigma w_i$

44. Harmonic mean formula:
A) $n / \Sigma(1/x_i)$
B) $\Sigma x_i / n$
C) $\sqrt{(\Sigma x_i^2 / n)}$
D) $\Sigma x_i^2 / \Sigma x_i$
Answer: A) $n / \Sigma(1/x_i)$

45. Chebyshev's inequality is used for:
A) Probability of events
B) Minimum proportion of observations within k SD
C) Correlation
D) Regression
Answer: B) Minimum proportion of observations within k SD

46. Standard deviation of {5, 7, 9}?
A) 1.5
B) 1.632
C) 2
D) 2.5
Answer: B) 1.632

47. Poisson probability P(X=0), λ=3?
A) 0.05
B) 0.0498
C) 0.1
D) 0.03
Answer: B) 0.0498

48. Binomial probability of 2 successes in 3 trials, p=0.5?
A) 0.25
B) 0.375
C) 0.5
D) 0.75
Answer: B) 0.375

49. Normal distribution mean=50, SD=5. P(X<55)?
A) 0.8413

B) 0.1587
C) 0.5
D) 0.68
Answer: A) 0.8413

50. Skewness > 0 indicates:
A) Negative skew
B) Positive skew
C) Symmetry
D) Undefined
Answer: B) Positive skew

51. Kurtosis > 3 indicates:
A) Platykurtic
B) Leptokurtic
C) Mesokurtic
D) Normal
Answer: B) Leptokurtic

52. Frequency polygon represents:
A) Cumulative frequency
B) Frequencies using midpoints
C) Histogram bars
D) Pie chart
Answer: B) Frequencies using midpoints

53. Histogram shows:
A) Continuous distribution of data
B) Pie chart
C) Line graph
D) Correlation
Answer: A) Continuous distribution of data

54. Ogive represents:
A) Frequency polygon
B) Cumulative frequency curve
C) Mean and median
D) Variance
Answer: B) Cumulative frequency curve

55. Mean deviation formula:
A) $\Sigma|x_i - \bar{x}| / n$
B) $\Sigma(x_i - \bar{x})^2 / n$
C) $\Sigma(x_i - \bar{x}) / n$
D) $\sqrt{\Sigma(x_i - \bar{x})^2} / n$
Answer: A) $\Sigma|x_i - \bar{x}| / n$

56. Probability of drawing 2 kings from 52 cards without replacement?
A) 1/221
B) 1/169
C) 1/132
D) 1/17
Answer: A) 1/221

57. If SD=0, data is:
A) Highly variable
B) All values equal
C) Normally distributed

D) Skewed
Answer: B) All values equal

58. Variance formula:
A) $\Sigma(x_i-\bar{x})^2 / n$
B) $\Sigma|x_i-\bar{x}| / n$
C) $\Sigma x_i / n$
D) SD × mean
Answer: A) $\Sigma(x_i-\bar{x})^2 / n$

59. Conditional probability P(A|B) = ?
A) P(A∩B)/P(A)
B) P(A∩B)/P(B)
C) P(A) × P(B)
D) P(A)+P(B)
Answer: B) P(A∩B)/P(B)

60. Random variable takes:
A) Only numerical values
B) Only letters
C) Words
D) Any type
Answer: A) Only numerical values

61. Discrete random variable example:
A) Height of students
B) Number of heads in coin toss
C) Temperature
D) Weight
Answer: B) Number of heads in coin toss

62. Continuous random variable example:
A) Number of cars
B) Time to reach office
C) Number of students
D) Tosses of coin
Answer: B) Time to reach office

63. Probability of sum of two dice being even?
A) 1/2
B) 1/3
C) 1/4
D) 2/3
Answer: A) 1/2

64. Poisson distribution is suitable for:
A) Number of cars passing per hour
B) Heights
C) Weights
D) Income
Answer: A) Number of cars passing per hour

65. Binomial distribution requires:
A) Only one trial
B) Fixed number of independent trials
C) Continuous data
D) Random sampling
Answer: B) Fixed number of independent trials

66. Probability of drawing a red or black card from deck?
A) 1/2
B) 1/4
C) 1
D) 0
Answer: C) 1

67. Standard error decreases when:
A) Sample size decreases
B) Sample size increases
C) Population size increases
D) SD increases
Answer: B) Sample size increases

68. Probability of complement of event A is:
A) 1−P(A)
B) P(A)
C) P(A)/2
D) 2P(A)
Answer: A) 1−P(A)

69. If all observations are equal, SD is:
A) 0
B) 1
C) Mean
D) Undefined
Answer: A) 0

70. Skewness of symmetric distribution:
A) Positive
B) Negative
C) Zero
D) Undefined
Answer: C) Zero

71. Kurtosis of normal distribution:
A) 2
B) 3
C) 4
D) 0
Answer: B) 3

72. In regression, sum of residuals =
A) 0
B) 1
C) Mean
D) SD
Answer: A) 0

73. Coefficient of determination R^2 represents:
A) Fraction of variance explained by model
B) Mean of X
C) Variance of Y
D) SD of X
Answer: A) Fraction of variance explained by model

74. Probability of at least one head in 3 tosses of coin?
A) 1/8

B) 3/8
C) 7/8
D) 1
Answer: C) 7/8

75. Sampling error decreases when:
A) Sample size increases
B) Sample size decreases
C) Population size increases
D) Population size decreases
Answer: A) Sample size increases

76. Mean of probability distribution =
A) Σx_i
B) $\Sigma x_i P(x_i)$
C) $\Sigma P(x_i)$
D) Σx^2
Answer: B) $\Sigma x_i P(x_i)$

77. Variance of probability distribution =
A) $\Sigma P(x_i)$
B) $\Sigma (x_i - \mu)^2 P(x_i)$
C) Σx^2
D) Σx
Answer: B) $\Sigma (x_i - \mu)^2 P(x_i)$

78. For binomial distribution, $P(X=0) = (1-p)^n$
A) True
B) False
Answer: A) True

79. In normal distribution, probability outside ±1 SD ≈
A) 68%
B) 32%
C) 95%
D) 5%
Answer: B) 32%

80. Z-score =
A) $(X-\mu)/\sigma$
B) $X \times \sigma$
C) $X+\mu$
D) $\mu - X$
Answer: A) $(X-\mu)/\sigma$

81. If correlation coefficient r = 0, variables are:
A) Perfectly correlated
B) Independent
C) Not linearly correlated
D) Same
Answer: C) Not linearly correlated

82. Spearman rank correlation uses:
A) Ranks
B) Values
C) Mean only
D) Variance only
Answer: A) Ranks

83. Regression line always passes through:
A) Origin
B) Mean(X), Mean(Y)
C) Median
D) Max point
Answer: B) Mean(X), Mean(Y)

84. Coefficient of skewness formula:
A) (Mean−Mode)/SD
B) Mean/SD
C) SD/Mean
D) Mode/SD
Answer: A) (Mean−Mode)/SD

85. Coefficient of kurtosis >3 indicates:
A) Platykurtic
B) Leptokurtic
C) Mesokurtic
D) Uniform
Answer: B) Leptokurtic

86. Probability of 1 head in 1 coin toss?
A) 0
B) 1
C) 1/2
D) 1/4
Answer: C) 1/2

87. Probability of 2 tails in 2 coin tosses?
A) 1/2
B) 1/4
C) 1/3
D) 1/8
Answer: B) 1/4

88. Random variable can be:
A) Continuous or discrete
B) Only discrete
C) Only continuous
D) None
Answer: A) Continuous or discrete

89. Sample mean approaches population mean as sample size:
A) Decreases
B) Increases
C) Stays same
D) Undefined
Answer: B) Increases

90. Central Limit Theorem states:
A) Mean of sample ≈ population mean
B) Variance of sample = population variance
C) Sum of n independent variables ≈ Normal distribution
D) Sample size small
Answer: C) Sum of n independent variables ≈ Normal distribution

91. For binomial, $P(X \geq 1)$ =
A) $1 - (1-p)^n$

B) p^n
C) np
D) n(1−p)
Answer: A) $1 - (1-p)^n$

92. Probability of an impossible event =
A) 0
B) 1
C) 0.5
D) Undefined
Answer: A) 0

93. Probability of a certain event =
A) 0
B) 1
C) 0.5
D) Depends on sample
Answer: B) 1

94. Relative frequency probability =
A) Frequency / total frequency
B) Frequency × total
C) Frequency − total
D) None
Answer: A) Frequency / total frequency

95. Odds in favor of event A =
A) P(A)/(1−P(A))
B) 1−P(A)/P(A)
C) P(A)+1
D) 1/P(A)
Answer: A) P(A)/(1−P(A))

96. Odds against event A =
A) (1−P(A))/P(A)
B) P(A)/(1−P(A))
C) P(A)+1
D) 1/P(A)
Answer: A) (1−P(A))/P(A)

97. Time series analysis identifies:
A) Trends, seasonal, cyclic, irregular variations
B) Mean only
C) Variance only
D) Correlation only
Answer: A) Trends, seasonal, cyclic, irregular variations

98. Simple moving average is used to:
A) Smooth data
B) Calculate variance
C) Find correlation
D) Compute regression
Answer: A) Smooth data

99. Weighted mean gives:
A) Equal importance to all observations
B) Different importance to observations
C) Mean of extremes

D) Median
Answer: B) Different importance to observations

100. Sample proportion $\hat{p}$ estimates:
A) Population mean
B) Population proportion
C) Population variance
D) Population SD
Answer: B) Population proportion