

1. India's first computer was installed at Indian Statistical Institute, Kolkata in the year :
 (A) 1950 (B) 1952 (C) 1956 (D) 1958
2. Who is the founder of "Sankhya", the Indian Journal of Statistics ?
 (A) C.R. Rao (B) R.C. Bose
 (C) S.N. Roy (D) P.C. Mahalanobis
3. Which ministry co-ordinates the census activities in India ?
 (A) Home Affairs (B) MoSPI (C) HRD (D) Finance
4. Which of the following measures involve nominal scale ?
 (A) The runs scored by a batsman (B) The rank of a student in a test
 (C) The height of a tree (D) The number on an automobile license plate
5. A random sample of 50 is picked without replacement from a population of 1000 adult males. If the standard deviation of the distribution of their heights is known to be 3 inches, then the standard error of the sample mean is :
 (A) $\frac{3}{\sqrt{50}}$ (B) $\frac{\sqrt{19}}{\sqrt{111}}$ (C) $\frac{\sqrt{855}}{\sqrt{5000}}$ (D) $\frac{\sqrt{18}}{\sqrt{95}}$
6. Which of the following statements is **true** ?
 (A) Sample survey is free of non - sampling errors
 (B) Sampling error is present in both census and sample surveys
 (C) Non - sampling error is comparatively low in sample surveys
 (D) Non - sampling error is comparatively low in census surveys
7. If a continuous random variable X has a pdf of the form $f(x) = \frac{2x}{9}$; $0 < x < 3$, and 0 otherwise, then the median of X is :
 (A) $\frac{3}{2}$ (B) $\frac{2}{3}$ (C) $\frac{3}{\sqrt{2}}$ (D) $\frac{2}{\sqrt{3}}$
8. If X and Y are independent random variables with respective moment generating functions $E(e^{tX}) = \frac{1}{4}(e^{0t} + e^{1t} + e^{2t} + e^{3t})$ and $E(e^{tY}) = \frac{1}{4}(e^{0t} + e^{4t} + e^{8t} + e^{12t})$, then the possible values of $Z = X + Y$ are :
 (A) 0, 1, 2, 3, 4, 8, 12 (B) 0, 5, 10, 15
 (C) 0, 4, 16, 36 (D) 0, 1, 2, ..., 15

9. A couple has two children one of them is known to be a boy. What is the probability that they have two boys ?
- (A) $\frac{1}{4}$ (B) $\frac{1}{3}$ (C) $\frac{3}{4}$ (D) $\frac{1}{2}$
10. The expected value of the random variable X having the pdf $f(x) = \frac{|x-2|}{7}$ for $x = -1, 0, 1, 3$ is :
- (A) $\frac{1}{7}$ (B) 1 (C) $\frac{3}{7}$ (D) $-\frac{1}{7}$
11. Which of the following cannot be a moment generating function ?
- (A) $\frac{1}{1-t^2}$ (B) $\frac{t}{1-t}$ (C) $e^{4(e^t-1)}$ (D) $\frac{1}{8}(1+e^t)^3$
12. Which of the following methods is are used for the computation of consumer price index numbers ?
- (A) Aggregate expenditure method (B) Family budget method
(C) Chain base method (D) Both (A) and (B)
13. Which ministry in India is responsible for compiling Wholesale Price Index ?
- (A) Labour (B) Commerce and Industry
(C) MoSPI (D) Finance
14. The salary of a person in the base year is ₹ 20,000 per month and in the current year ₹ 50,000. If the current Consumer Price Index is 325 then the allowance required to maintain the same standard of living is :
- (A) ₹ 30,000 (B) ₹ 35,000 (C) ₹ 15,000 (D) None of these
15. Suppose a family spends on food, housing and clothing in the ratio 5 : 3 : 2. If there is a rise in prices of these heads by 40, 30 and 20 percent respectively, then the family budget for these items will be increased by :
- (A) 33% (B) 30% (C) 25% (D) None of these
16. If the two lines of regression are $x + 2y - 5 = 0$ and $2x + 3y - 8 = 0$ then the correlation between x and y is :
- (A) $\frac{\sqrt{3}}{2}$ (B) $-\frac{\sqrt{3}}{2}$ (C) $\frac{3}{4}$ (D) $-\frac{3}{4}$

17. Which of the following components may be ignored when a time series data is collected on an annual basis ?
 (A) Trend (B) Seasonal (C) Cyclical (D) Irregular
18. Crude birth rates are calculated by dividing the births during a year by :
 (A) Mid - year population for that year
 (B) End - year population for that year
 (C) Population at the beginning of the year
 (D) None of these
19. The chart suitable to represent the data on blood donation of O, A, B and AB blood groups by the students in a college during the last four years is :
 (A) pie chart (B) histogram
 (C) multiple bar diagram (D) cartogram
20. The average marks of boys in a class is 65 and that of girls is 70. The average of both the groups combined is 67. Then the ratio of number of boys and girls is :
 (A) 1 : 3 (B) 2 : 3 (C) 3 : 1 (D) 3 : 2
21. On fitting a bivariate linear regression model to a data set ($n = 10$) it is found that the variance of the dependent variable (based upon a division of n) is 8.5 and the residual sum of squares is 17. Then the coefficient of determination (r^2) of the fitted model is :
 (A) 0.80 (B) 0.20 (C) 0.50 (D) 0.25
22. Which average is suitable for finding the average of proportions ?
 (A) Arithmetic mean (B) Median
 (C) Mode (D) Geometric mean
23. Which of the following statements is false if multicollinearity is present ?
 (A) There occurs several models which include different sets of explanatory variables consonant with the data.
 (B) There can be no clear cut interpretation of the regression coefficients as measures of marginal effects.
 (C) The regression coefficients may be unstable
 (D) The OLS estimates of regression coefficients are no longer unbiased.
24. If Q_1, Q_2, Q_3 are the quartiles, then which of the following holds for a positively skewed data ?
 (A) $Q_3 - Q_1 > Q_2$ (B) $Q_1 + Q_2 > 2Q_3$ (C) $Q_1 + Q_3 > Q_2$ (D) $Q_1 + Q_3 > 2Q_2$
25. The null hypothesis of Durbin - Watson test for auto correlation is :
 (A) random component of the regression model is independently and normally distributed
 (B) random component of the regression model is dependent and normally distributed
 (C) there is one period dependence between successive values of the random component
 (D) None of these