

ASSISTANT STATISTICAL OFFICER

REVISED KEYS – PAPER –II- ECONOMICS

Question No.8:

The age of 1000 students studying in an Indian university is classified as follows:

Age (in years)	No. of students
17-22	500
22-24	250
24-30	150
30-35	72
35-40	25
40-45	3

We represent the above information using a Histogram. Let the heights of the rectangles representing the class intervals 17-22 and 35-40 be h_1 and h_2 , respectively. Then, h_1/h_2 is

DELETED

15. The following table shows each family of a survey, classified according to both their family income and the level of happiness:

Income	Level of Happiness			Total
	Not too happy	Pretty happy	Very happy	
Above average	36	213	111	360
Average	81	506	263	850
Below average	173	377	110	660
Total	290	1096	484	1870

Consider the following statements:

- I. The percentage of the families who are having below average income and are very happy is 5.88%.
- II. The percentage of the families having above average income who are not too happy is 10%.

The correct statement(s) is / are

ONLY-1

31. Let X be a random variable such that $E|X| < \infty$ and

$$P\left(X < \frac{1}{5} + x\right) = P\left(X > \frac{1}{5} - x\right)$$

DELETED (OUT OF SYLLABUS)

32. Let the random variable X has the probability density function

$$f_X(x) = \begin{cases} \frac{1}{x^2} & x > 1, \\ 0, & \text{other wise} \end{cases}$$

Then, the first (lower) quartile of the distribution is

DELETED (OUT OF SYLLABUS)

33. Let the random variable X has the probability density function

$$f_X(x) = \begin{cases} \frac{2}{x^3} & x > 1, \\ 0, & \text{other wise.} \end{cases}$$

Then, the first (from the lower side) decile of the distribution is

DELETED (OUT OF SYLLABUS)

35. Let the random variable X has the probability density function

DELETED (OUT OF SYLLABUS)

38. Let the random variable X has the probability density function

DELETED (OUT OF SYLLABUS)

39. Let the random variable X has the probability density function $f_X(x) =$

DELETED (OUT OF SYLLABUS)

40. Let the random variable X has the probability density function

DELETED (OUT OF SYLLABUS)

43. Let the random variable X has the cumulative distribution function

DELETED (OUT OF SYLLABUS)

47. One of the dening features of a smartphone is how long it can stay in standby mode on a single charge of the battery. Based on data from smartphones available from major cell phone carriers in the United States in 2014 (and relying on the fact that a manufacturer's claim of the standby time is accurate), the distribution of the standby time approximately follows a normal distribution with a mean of 330 minutes and a standard deviation of 80 minutes. What percentage of smartphones have a standby time below 230 minutes? (Given that $\Phi(1.25) = 0.8944$, where $\Phi(\cdot)$ is the cumulative distribution function of the standard normal variate.)

DELETED (OUT OF SYLLABUS)

50. Let X_1 and X_2 be two random variables with $\text{Var}(X_1) = 1$; $\text{Var}(X_2) = 2$ and $\text{Cov}(X_1; X_2) = 0.25$. Then, the variance of $X_1 + 2X_2$ is given by

DELETED (OUT OF SYLLABUS)

54. Let $X_1; X_2; X_3$ be a random sample from

DELETED (OUT OF SYLLABUS)

55. One of the patients in the ICU study had a high systolic blood pressure of 204 mmHg and a low pulse rate of 52 bpm. Which of these values is/are more unusual relative to the other patients in the sample? (The summary statistics for systolic blood pressure show a mean of 132 and standard deviation of 32, while the heart rates have a mean of 99 and standard deviation of 27. Assume that the distributions are normal for both the blood pressure and pulse rate.)

DELETED (OUT OF SYLLABUS)

56. Consider the three random variables X , $5X$ and $X=5$, where $X \sim N(5; 3)$. Let v_1 , v_2 and v_3 be the coefficient of variations of these random variables, respectively. Which one of the following is correct?

DELETED (OUT OF SYLLABUS)

57. Let v_i denote the coefficient of variation of the distribution of X_i , where X_i

DELETED (OUT OF SYLLABUS)

58. Let the random variable X has exponential distribution with mean 1. Then, the IQR of the distribution is

DELETED (OUT OF SYLLABUS)

67. Consider the random variable X with $P(X = n) = \frac{1}{5}$, $n \in \{0, \pm 1, \pm 2\}$. Let $Y = X^2$. Now, consider the following statements:

- I. X and Y are independent.
- II. X and Y are uncorrelated.

Which of the above statements is/are correct?

DELETED (OUT OF SYLLABUS)

68. Let $X_1; X_2; X_3$ be a random sample from $N(0, \sigma^2)$, where σ is a known constant. Then, the correlation coefficient between $X_1 + X_2$ and $X_2 + X_3$ is

DELETED (OUT OF SYLLABUS)

78. Consider a random variable X with the probability density function

DELETED (OUT OF SYLLABUS)

80. Let Z_1 and Z_2 be two independent $N(0; 1)$ random variables. Define $X = Z_1$ and $Y = Z_2$

DELETED (OUT OF SYLLABUS)

135. FRBMA 2003 emphasizes on the following except one. Identify that one?

Both improve competitiveness of domestic goods and services in the globalized economic environment and capital – Led Fiscal consolidation

139. In the year 2011-12, out of 1000 people, in the population 395 persons were in the labor force according to Usual Status. Persons unemployed are 9. Find out the work force participation rate?

DELETED