MATHS

BOOKS - UNITED BOOK HOUSE

Techno India Group Academia South Kolkata, Question Paper

Exercise

1. Abscissa of the point of intersection of the

Iess than and greater than ogives corresponds

to

A. arithmetic mean

B. the median

C. mode

D. none of these

Answer:

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2. Let the relation between two variables x and u be $3x + 4u = 21$. Suppose the first quartile and the A.M. of x are -1 and 3 respectively, then the third quartile of u is

A. 6

B. $\frac{3}{4}$

C. 7

D. none of these

Answer:

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3. If f(x) $=e^{x+a}$, $g(x)=x^{b^2}$ and $h(x)=e^{b^2x}$, then find the value of $\frac{g\{f(x)\}}{h(x)}$

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4. If A.M. and coefficient of variation of x is 6 and 50% respectively, then variance of x is

A. 4

B. 2

C. 16

D. 8

Answer:

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5. For a set of positive quantities, Prove that

$A.M. \geq GM \geq H.M..$

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6. If p, q, r be the roots of the equation $x^3 + ax - b = 0$, then the value of pqr will be

A. a

B. 1

C. b

D. 0

Answer:

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7. Given 2 mutually exclusive events A and B such that P(A) = 0.45, P(B) = 0.35. Then the value of $P(A \cap B)$ wqill be

A. 0.8

B. 0.1

C. 0

D. none

Answer:

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8. Two fair dice are thrown. If the sum of two nos. obtained is 8, then the probability that the first no. will be 6 is

A. $\frac{1}{6}$

B. $\frac{5}{36}$

C. $\frac{1}{4}$

D. none of these

Answer:

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9. For a positively skewed distribution, what is the relation between mean, median and mode?

A. mean = median = mode

B. mean lt median lt mode

C. mean gt median gt mode

D.

Answer:

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10. If the number of educated persons is 65% of the population, then in piediagram, angle is needed to mark the sector is

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11. If the mean and median of a distribution is 5 and 6 respectively, then find the value of mode.

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12. If 2u = 5x and the harmonic mean of x is 0.4, then find the harmonic mean of u.

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13. If P(A) = 2/3, P(B) = 1/2 and $P(A \cup B) = \frac{3}{4}$ then find the value of $P\left(A^C \cup B^C\right)$.

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14. If P(A) = 2/3, P(B) = 1/2 and $P(A \cup B) = \frac{3}{4}$ then find the value of $P\left(A^C \cup B^C\right)$.

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15. If P(A) = 2/7, P(B) = 6/11, what is the probability that at least one of the two independent events A and B will occur?

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16. What is the value of Sheppard's correction of moments for m_4?

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17. State anyone of the Pearson's measure of skewness.

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18. State true or false : "Index number is a unit-free number".

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19. If the standard deviation of the set of nos. 1, 2, 3,....,k is 2, then find the value of k.

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20. If the A.M. and G.M. of two positive real nos. are 45 and 9 respectively, then find their H.M.

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21. Show that the sum of deviations of a set of observations about their mean is Zero.

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22. In a group of 20 males and 5 females, 10 males and 3 females ae service holders, What is the probability that a persons selected at random from the group, is a service holder, given that the selected person is a male?

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23. If A, B, C are three independent events such that P(A) = 1/4, P(B) = 1/3, P(C) = 2/5, then find $P(A \cup B \cup C)$.

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24. Write the classical definition of probability and state its limitations.

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25. Write down the Fisher's Price index formula.

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26. My friend Rabeya's father has a furniture shop in Andul.I often visit their shop with Rabeya,This time . I found many people working in their shop.Rabeyas father has got orders from 7 schools, to make chair, tables and almirahs.From each school he got orders for 10 chairs, 10 tables and 10 almirahs for keeping books.Let me find what is the total amount of order Rabey's father has got from 7 schools.Total cost of 10 chairs,10 table and 10 almirahs is Rs. 11,42,575.

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27. If a, b, c are all positive, prove that $6abc \leq bc(b+c) + ca(c+a) + ab(a+b)$

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28. For $n \in N$, prove that $\left(\frac{n+1}{2}\right)^n >$ n!

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29. When $\left(x^5 - 1\right)$ is divided by (2x + 1), then the remainder is

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30. State and prove Cauchy-Schwartz inequality.

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31. Show that if events A and B are independent, then so are A^c and B^c.

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32. An urn contains 4 tickets having the nos. 112, 121, 211, 222. A ticket is drawn at random. The even A_i = the event that the i^{th} digit is 1 (I = 1 to 3). Shwo that the events A_1, A_2, A_3 are pair wise independent but not mutually independent.

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33. If a fair coin is tossed thrice find the probability that there are

at least one head

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34. If a variable be such that np observations are all equal to 1 and the remaining nq observations are all equal to 0. (p + q = 1). Find the mean and standard deviation of that variable.

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35. Prove that Mean deviation is minimum about its median.

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36. Find the standard Deviation of 6 and 8.

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37. The lower and the upper quartiles of a disiribution are 14.6 and 25.2 respectively and

the coefficient of skewness is 0.5. Find the median of the distribution.

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38. The first of two urns contains 3 white and 2 black balls and 2 red balls. One ball is taken at random from the first urn and is placed in the second urn. Then if one ball is taken at random from the second urn, find the probabilities that it is black.

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39. The first of two urns contains 3 white and 2 black balls and 2 red balls. One ball is taken at random from the first urn and is placed in the second urn. Then if one ball is taken at random from the second urn, find the probabilities that it is either red or white.

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40. If the mean square deviation of a variable x about 3 is 20 and the mean of x is 5, calculate

the minimum value of root-mean square deviation of x.

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41. The scores of batsman in 10 matches were as follows : 38, 70, 48, 34, 42, 55, 63, 54, 44. Find the mean of these 10 scores.

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