MATHS

BOOKS - UNITED BOOK HOUSE

Question Paper 2018

Exercise

1. If two variables x and y are so related as 3x + 4y = 21 and Q_1 and Q_3 of x are -1 and 7 respectively, then Q_3 of y is

A. 0

B. 6

C. 21

D. (-)7/3

Answer:

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2. The mean of n observation is a. If the 1st observation is increased by 1, second by 2 and so on, then new mean is

A. a + n

B. a + n/2

C. $a + \frac{n+1}{2}$

D. None of these

Answer:

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3. If arithmetic mean and coefficient of variation of x is 6 and 50% respectively, then what is the variance of x?

A. 3

B. 6

C. 9

D. None of these

Answer:

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4. Which of the following is a Fermat's number?

A. 1) 4

B. 2) 11

C. 3) 6

D. 4) 3

Answer:

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5. $44 \equiv 6 \pmod{n}$ where n can be

A. 2

B. 7

C. 9

D. 11

Answer:

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6. $\Delta^4\left(3x^3+7x+8\right)$ =

A. 0

B. 3

C. 1

D. None of these

Answer:

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7. For 2 positive numbers m and n, which is the correct relation for (m+n) (1/m + 1/n)?

A. > 4

B. < 4

C. ≤ 4

D. ≥ 4

Answer:

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8. If A and B are two mutually exclusive event then P(A-B) =

A. a)$P(A) - P(B)$

B. b)$P(A)$

C. c) $P(A \cap B)$

D. d) $P(A) - P(A \cap B)$

Answer:

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9. For any two events A and B which relation is not correct?

A. a)

$$P(A \cup B) = P(A) + P(B) - P(A).\, P\left(\frac{B}{A}\right)$$

B. b) $P(A \cup B) = P(A) + P(B) - P(A).\, P(B)$

C. c)

$$P(A \cup B) = P(A) + P(B) - P(B).\, P\left(\frac{A}{B}\right)$$

D. d) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Answer:

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10. Which percentile is taken as the measure of central tendency?

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11. What is cross-sectional data?

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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 $g_2 < 0$, then mention the name of the distribution on the basis of Kurtosis.

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14. If the mean and mode of a distribution is 5 and 4 respectively, then find the value of median.

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15. There are two children in a family.One of them is a girl child .What is probability that the other one is also a girl child?

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16. What is the chance of throwing a 6 at least once in 5 trials of an unbiased die?

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17. If p be occurrence of an event in a single trail, then show that the probability of at least one occurrence in n trials is $1-(1-p)^n$.

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18. If A and B are 2 event with probability P(A) and P(B), then find the probability that exactly one of them occur.

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19. Define Real wage.

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20. Define simple aggregative price index.

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21. Define crude rate of Natural increase.

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22. Find the arithmetic mean of first n event natural numbers.

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23. Find the harmonic mean of 1, 1/2, 1/3, 1/n.

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24. Show that $m_4 \geq m_2^2$.

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25. State classical definition of probability.

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26. If P(A) = a and P(B) = b, then show that $P\left(\frac{A}{B}\right) \leq \frac{a}{b}$.

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27. Cards are drawn randomly without replacing from a full pack of 52 cards, then what is the probability that 5 cards will precedes the first ace?

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28. What is a questionnaire in Statistics? State various characteristics of a good questionnaire.

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29. Find the arithmetic mean of 7, 77, 777.....upto p-th term.

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30. If a, b, c are positive, prove that $(a + b + c)(ab + bc + ca) \geq 9abc$.

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31. If a, b, c are positive number satisfying 4ab + 6bc + 8ca = 9, then find the greatest value of (abc).

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32. Find the relation between a and b so that $2x^4 - 7x^3 + ax + b$ may be divisible by x - 3.

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33. If 19 biscuits of different types be distributed among 5 children, then find the probability that a particular child will get 6 biscuits.

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34. If $\left(A^C \cup B^C\right) = \frac{7}{8}$ and $\left(A^C \cap B^C\right) = \frac{3}{8}$ where A and B are independent, then find P(A) and P(B).

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35. If the A.M. and S.D. at n observation $x_1, x_2, \ldots\ldots\ldots\ldots x_n$ be $\bar{x}$ and s respectively, then

find the A.M. and S.D. of

$(-x_1, -x_2, \ldots\ldots\ldots\ldots -x_n, x_1, x_2, \ldots\ldots\ldots x_n)$.

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36. Define Pearson's 2nd measure of Skewness (SK_2).

Show that -3 le Sk_2 le 3`.

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37. In a city suppose 3% of the population is known to be affected by a particular disease. There is a test for the disease. Of there with the disease 98% test positive and of these without the disease 99.8% test

positive. What would be the probability that an individual selected at random with a positive test result does not have the disease?

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38. State and prove Bayes Theorem of probability.

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39. Describe how you would construct a cost of living index number for the lower middle class people in Kolkata.

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