1. If A={1,2,3,4,5,7,8,9} and B={2,4,6,7,9} then how many proper subset of $A \cap B$ can be created

   A.   16

   B.   15

   C.   32

   D.   31

2. Find the area under the curve $f(x)=x^2+5x+2$ with the limits 0 to 1

   A.   3.833

   B.   4.388

   C.   4.833

   D.   3.338

3. If pth term of an AP is q and its qth term is p, then what will be the value of (p+q)th term?

   A.   0

   B.   1

   C.   p+q–1

   D.   2(p+q–1)

4. The maxima and minima of the function $y = 2x^3 - 15x^2 + 36x + 10$ occurs respectively at

   A.   x=2 and x=3

   B.   x=1 and x=3

   C.   x=3 and x=2

   D.   x=3 and x=1

*

(4)

KEJ

5. If mean $(\bar{X})$ is = 10 and mode(Z) is = 7, then find out the value of median(M).

 A. 9
 B. 17
 C. 3
 D. 4.33

6. Which one of the following is a source of primary data?

 A. Government records
 B. Research Articles
 C. Journals
 D. Questionnaire filled by enumerators

7. If the coefficient of variation and standard deviation are 30 and 12 respectively, then the arithmetic mean of the distribution is

 A. 40
 B. 36
 C. 25
 D. 19

8. _____ is based on all the observations and _____ is based on the central fifty percent of the observations.

 A. Mean deviation, Range
 B. Mean deviation, quartile deviation
 C. Range, standard deviation
 D. Quartile deviation, standard deviation

9. The relationship between two variables x and y is given by $4x - 10y = 20$. If the median value of the variable x is 10 then what is median value of variable y?

 A. 1.0
 B. 2.0
 C. 3.0
 D. 4.0

KEJ

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KEJ

10. From the following data, obtain the index number by Laspeyre's method:
$\Sigma P_1 Q_0 = 99$, $\Sigma P_0 Q_0 = 76$, $\Sigma P_1 Q_1 = 75$, $\Sigma P_0 Q_1 = 96$

 A. 130.26
 B. 131.51
 C. 130.28
 D. 76.9

11. Which of the following index measures the change from month to month in the cost of a representative "basket" of goods and services of the type which are brought by a typical household?

 A. Retail Price Index
 B. Laspeyre's Index
 C. Fisher's Index
 D. Paasche's Index

12. Fisher's index number is called an ideal index number because it is satisfying

 A. Factor reversal test
 B. Time reversal test
 C. Both factor and time reversal test
 D. Circular test

13. If Laspeyre's Index is 119 and Paasche's Index is 112, then Fisher's Index number will be:

 A. 113.99
 B. 115.45
 C. 115.89
 D. 151.98

14. In price index, when a new commodity is required to be added, which of the following index is used?

 A. Shifted price index
 B. Splicing price index
 C. Deflating price index
 D. Value price index

KEJ

P.T.O.

(6)
KEJ

15. Let A = {1, 2, 3} and consider the relation R = {(1, 1), (2, 2), (3, 3), (1, 2), (2, 3), (1,3)}. Then R is:

A. symmetric and transitive

B. reflexive but not transitive

C. reflexive but not symmetric

D. neither symmetric, nor transitive

16. There are 20 points in a plane area. How many triangles can be formed by these points if 5 points are collinear?

A. 550

B. 560

C. 1130

D. 1140

17. In a G.P., 5th term is 27 and 8th term is 729. Find its 11th term.

A. 729

B. 6561

C. 2187

D. 19683

18. If $y = x^x$, then dy/dx at $x=1$ is equal to

A. 0

B. 1

C. −1

D. 2

KEJ

(7)
KEJ

19. Suresh's sister is the wife of Ram. Ram is Rani's brother. Ram's father is Madhur. Sheetal is Ram's grandmother. Rema is sheetal's daughter-in-law. Rohit is Rani's brother's son. Who is Rohit to Suresh?

A. Brother-in-law

B. Son

C. Brother

D. Nephew

20. Which is the left part of the table providing the description of the rows?

A. Caption

B. Box head

C. Stub

D. Body

21. Which one of the following is not a method of measures of dispersion?

A. Standard deviation

B. Mean deviation

C. Range

D. Concurrent deviation method

22. There are six children playing football namely A, B, C, D, E, and F. A & E are brothers. F is sister of E. C is the only son of A's uncle. B & D are daughters of the brother of C's father. How D is related to A?

A. Uncle

B. Cousin

C. Niece

D. Sister

23. The suitable formula for computing the number of class intervals is:

A. 3.322 logN

B. 0.322 logN

C. 1+3.322 logN

D. 1−3.322 logN

KEJ

P.T.O.

(8)

KEJ

24. The equations of the two lines of regression are $4x+3y+7=0$ and $3x+4y+8=0$. Find the correlation coefficient between x and y

A. −0.75

B. 0.25

C. −0.92

D. 1.25

25. If the regression equations are $2x+3y+1=0$ and $5x+6y+1=0$, then Mean of x and y respectively are

A. −1,−1

B. −1,1

C. 1,−1

D. 2,3

26. If $b_{yx}=0.5$, $b_{xy}=0.46$ then the value of correlation coefficient r is:

A. 0.23

B. 0.25

C. 0.39

D. 0.48

27. The coefficient of rank correlation between the ranking of following 6 students in two subjects Mathematics and Statistics is:

| Mathematics | 3 | 5 | 8 | 4 | 7 | 10 |
| Statistics | 6 | 4 | 9 | 8 | 1 | 2 |

A. 0.25

B. 0.35

C. 0.38

D. 0.20

KEJ

(9)

KEJ

28. A machine worth ₹ 4,90,740 is depreciated at 15% on its opening value each year. When its value would reduce to ₹ 2,00,750

A. 5 years 5 months

B. 5 years 6 months

C. 5 years 7 months

D. 5 years 8 months

29. The number of ways 4 boys and 3 girls can be seated in a row so that they are alternate is:

A. 12

B. 288

C. 144

D. 256

30. If $^nP_r=3024$ and $^nC_r=126$, then find n and r

A. 9, 4

B. 10, 3

C. 12, 4

D. 11, 4

31. If ₹ 64 Amount to ₹ 83.20 in 2 years, what will ₹ 86 Amount to in 4 years at the same Rate percent per annum?

A. ₹ 127.60

B. ₹ 147.60

C. ₹ 145.34

D. ₹ 117.60

32. How many 3 digit odd numbers can be formed using the digits 5, 6, 7, 8, 9, if the digits can be repeated?

A. 55

B. 75

C. 65

D. 85

KEJ

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KEJ

KEJ

33. In a joint family, there are father, mother, 3 married sons and one unmarried daughter. Out of the sons, two have 2 daughters each and one has a son only. How many female members are there in the family?

A. 3

B. 6

C. 9

D. 5

34. When Rani saw Vinit, she recollected that "He is the brother of my grandfather's son". How is Rani related to Vinit?

A. Aunt

B. Daughter

C. Sister

D. Niece

35. Annanya is mother of Satya and Shyam is the son of Bhima. Shiva is brother of Annanya. If Satya is sister of Shyam, how Bhima is related to Shiva?

A. Son

B. Cousin

C. Brother-in-law

D. Son-in-law

36. Suman is daughter-in-law of Rakesh and sister-in-law of Rajesh. Ramesh is the son of Rakesh and only brother of Rajesh. Find the relation of Suman with Ramesh.

A. Sister-in law

B. Cousin

C. Aunt

D. Wife

37. Skewness of Normal Distribution is

A. Negative

B. Positive

C. Zero

D. Undefined

38. Pearson's Correlation coefficient between x and y is:

A. $\dfrac{cov(x,y)}{S_x S_y}$

B. $\dfrac{cov^2(x,y)}{S_x S_y}$

C. $\dfrac{(S_x S_y)^2}{cov(x,y)}$

D. $\dfrac{S_x S_y}{cov(x,y)}$

39. If a Poisson distribution is such that $P(X=2)=P(X=3)$ then the variance of the distribution is

A. $\sqrt{3}$

B. 3

C. 6

D. 9

40. The Standard Deviation of Binomial distribution is:

A. npq

B. $\sqrt{npq}$

C. np

D. $\sqrt{np}$

KEJ

KEJ

P.T.O.

(12)

KEJ

(13)

KEJ

41. A farmer borrowed ₹ 3600 at the rate of 15% simple interest per Annum. At the end of 4 years, he cleared this account by paying ₹ 4000 and a cow. The cost of the cow is:

A. ₹1000

B. ₹1200

C. ₹1550

D. ₹1760

42. How much amount is required to be invested every year so as to accumulate ₹ 5,00,000 at the end of 12 years if interest is compounded annually at 10%? {Where A (12, 0.1) = 21.384284}

A. ₹ 23381.65

B. ₹ 24385.85

C. ₹ 26381.65

D. ₹ 28362.75

43. The effective annual rate of interest corresponding to a normal rate of 6% per annum payable half yearly is:

A. 6.06 %

B. 6.07 %

C. 6.08 %

D. 6.09 %

44. 10 years ago the earning per share (EPS) of ABC Ltd. was ₹ 5 share. Its EPS for this year is ₹ 22. Compute at what rate, EPS of the company grow annually?

A. 15.97%

B. 16.77%

C. 18.64%

D. 14.79%

KEJ

45. If 'FROZEN' is decoded as 'OFAPSG'. Tick the right option that depicts 'MOLTEN' written in this way?

A. OFPOMN

B. OFSMPN

C. OFUMPN

D. OFUNPN

46. Radha moves towards South-East a distance of 7 km, then she moves towards West and travels a distance of 14 km. From here she moves towards North-West a distance of 7 km and finally she moves a distance of 4 km towards east. How far is she now from the starting point?

A. 3 km

B. 4 km

C. 10 km

D. 11 km

47. P, Q, R and S are playing a game of carrom. P, R and S, Q are partners. 'S' is to the right of 'R'. If 'R' is facing West, then 'Q' is facing which direction?

A. South

B. North

C. East

D. West

48. Pointing to a man in the photograph, Khushi says, "This man's son's sister is my mother-in-law." How is the Khushi's husband related to the man in the photograph?

A. Grandson

B. Son

C. Son in law

D. Cousin

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KEJ

P.T.O.

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KEJ

49. A machine is made of two parts A and B. The manufacturing process of each part is such that probability of defective in part A is 0.08 and that B is 0.05. What is the probability that the assembled part will not have any defect?

A. 0.934

B. 0.864

C. 0.85

D. 0.874

50. If $P(A)=\frac{1}{3}$, $P(B)=\frac{3}{4}$ and $P(A \cup B)=\frac{11}{12}$ then $P\left(\frac{B}{A}\right)$ is :

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

B. $\frac{4}{9}$

C. $\frac{1}{2}$

D. $\frac{1}{8}$

51. The probability that a leap year has 53 Monday is:

A. $\frac{1}{7}$

B. $\frac{2}{3}$

C. $\frac{2}{7}$

D. $\frac{3}{5}$

KEJ

(15)

KEJ

52. Raju invests ₹. 20,000 every year in a deposit scheme starting from today for next 12 years. Assuming that interest rate on this deposit is 7% per annum compounded annually. What will be the future value of this annuity? Given that $(1+0.07)^{12} = 2.25219159$.

A. ₹. 540,526

B. ₹. 382,813

C. ₹. 643,483

D. ₹. 357,769

53. Mr.A invested ₹ 10,000 every year for next 3 years at the interest rate of 8 percent per annum compounded annually. What is future value of the annuity?

A. 32644

B. 32464

C. 34264

D. 36442

54. Mr. Prakash invested money in two schemes 'A' and 'B' offering compound interest at the rate of 8 % and 9 % per annum respectively. If the total amount of interest accrued through these two schemes together in two years was ₹. 4818.30 and total amount invested was ₹. 27,000. What was the amount invested in scheme 'A'?

A. ₹. 12,000

B. ₹. 12,500

C. ₹. 13,000

D. ₹. 13,500

55. A sum of money invested of compound interest doubles itself in four years. In how many years it becomes 32 times of itself at the same rate of compound interest.

A. 12 years

B. 16 years

C. 20 years

D. 24 years

KEJ P.T.O.

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KEJ

56. One morning a boy starts walking in a particular direction for 5 Km and then takes a left turn and walks another 5 Km thereafter he again takes left turn and walks another 5 Km and at last he takes right turn and walks 5 Km. Now he sees his shadow in front of him. What direction he did start initially?

A. South
B. North
C. West
D. East
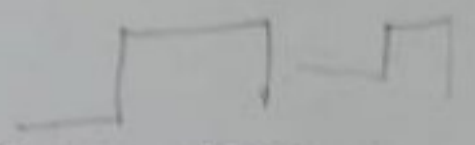
57. It is 3' o clock in a watch. If the minute hand points towards the North-East then the hour hand will point towards the

A. South
B. South – West
C. North – West
D. South – East
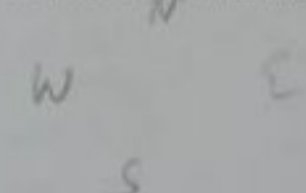
58. Six persons A, B, C, D, E, and F are sitting in two rows with three persons in each row. Both rows are in front of each other. E is not at the end of the any row and D is second left to the F. C is neighbour of E and diagonally opposite to D. If B is neighbour of F who is in front of C then who is sitting diagonally to F?

A. C
B. E
C. A
D. D

59. Find the odd man out:
34, 105, 424, 2123, 12756

A. 12756
B. 2123
C. 424
D. 34

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KEJ

60. The speeds of a number of bikes follow a normal distribution model with a mean of 83 km/hr and a standard deviation of 9.4 km/hr. Find the probability that a bike picked at random is travelling at more than 95 km/hr?

A. 0.1587
B. 0.38
C. 0.49
D. 0.278

61. Suppose A and B are two independent events with probabilities $P(A) \neq 0$ and $P(B) \neq 0$. Let A' and B' be their complements. Which one of the following statements is FALSE?

A. $P(A \cap B) = P(A) P(B)$
B. $P(A/B) = P(A)$
C. $P(A \cup B) = P(A) + P(B)$
D. $P(A' \cap B') = P(A') P(B')$

62. The Theorem of Compound Probability states that for any two events A and B.

A. $P(A \cap B) = P(A) \times P(B/A)$
B. $P(A \cup B) = P(A) \times P(B/A)$
C. $P(A \cap B) = P(A) \times P(B)$
D. $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

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KEJ   P.T.O.

(18)

KEJ

63. The difference between compound interest and simple interest on an amount of ₹ 15,000 for 2 years is ₹ 96. What is the rate of interest per annum?

A. 9%

B. 8%

C. 11%

D. 10%

64. ₹ 5,000 is invested every month end in an account paying interest @ 12% per annum compounded monthly. What is the future value of this annuity just after making 11th payment? (Given that $(1.01)^{11} = 1.1156$)

A. ₹. 57,800

B. ₹. 56,100

C. ₹. 56,800

D. ₹. 57,100

65. If the roots of the equation $x^2 - px + q = 0$ are in the ratio 2:3, then

A. $p^2 = 25q$

B. $p^2 = 6q$

C. $6p^2 = 5q$

D. $6p^2 = 25q$

66. A sum of money doubles itself in 4 years at certain compound interest rate. In how many years this sum will become 8 times at the same compound interest rate?

A. 12 years

B. 14 years

C. 16 years

D. 18 years

67. Sinking fund factor is the reciprocal of :

A. Present value interest factor of a single cash flow

B. Present value interest factor of an annuity.

C. Future value interest factor of an annuity.

D. Future value interest factor of a single cash flow.

KEJ

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KEJ

68. Find the missing number in the following series?

3, 5, 5, 19, 7, 41, 9, ?, 41, 109

A. 71

B. 61

C. 69

D. 79

69. P, Q, R, S and T are sitting in a line facing West. P and Q are sitting together. R is sitting at south end and S is sitting at North end. T is neighbour of Q and R. Who is sitting the middle?

A. P

B. Q

C. R

D. S

70. A man is facing west. He turns 45 degree in the clockwise direction and then another 180 degree in the same direction and then 270 degree in the anticlockwise direction. Find which direction he is facing now?

A. South- East

B. West

C. South

D. South-West

71. In certain code language, if TOUR is written as 1234, CLEAR is written 5678 and SPARE is written as 90847, find the code for CARE?

A. 1247

B. 4847

C. 5247

D. 5847

KEJ

P.T.O.

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KEJ

72. Mean deviation is minimum when deviations are taken from:

A. Mean

B. Median

C. Mode

D. Range

73. If a number is selected at random from the first 50 natural numbers, what will be the probability that the selected number is a multiple of 3 and 4?

A. 5/50

B. 2/25

C. 3/50

D. 4/25

74. If the first quartile is 56.50 and the third quartile is 77.50, then the coefficient of quartile deviation is

A. 638.09

B. 15.67

C. 63.80

D. 156.71

75. If three coins are tossed simultaneously, what is the probability of getting two heads together?

A. 1/4

B. 1/8

C. 5/8

D. 3/8

KEJ

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KEJ

76. What will be the value of k, if the roots of the equation $(k-4)x^2 - 2kx + (k+5) = 0$ are equal?

A. 18

B. 20

C. 19

D. 21

77. If $2x+5 > 3x+2$ and $2x-3 <= 4x-5$, the 'x' can take which of the following values :

A. 4

B. -4

C. 2

D. -2

78. If the cost of 3 bags and 4 pens is ₹ 257 whereas the cost of 4 bags and 3 pens is ₹ 324, then the cost of one bag is:

A. 8

B. 24

C. 32

D. 75

79. If $\log_{10} 2 = y$ and $\log_{10} 3 = x$, then the value of $\log_{10} 15$ is :

A. $x - y + 1$

B. $x + y + 1$

C. $x - y - 1$

D. $y - x + 1$

80. $\log_3 4 . \log_4 5 . \log_5 6 . \log_6 7 . \log_7 8 . \log_8 9$ equals to:

A. 3

B. 2

C. 1

D. 0

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KEJ

P.T.O.

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KEJ

81. The number of subsets of the set {0, 1, 2, 3} is
    A. 2
    B. 4
    C. 8
    D. 16

82. Find the next number in the given sequence?
    11, 17, 39, 7, 281,447
    A. 133
    B. 143
    C. 153
    D. 163

83. $\int (2x-3)^5 dx$ is

    A. $\dfrac{(2x-3)^6}{6}$

    B. $\dfrac{(2x-3)^6}{2}$

    C. $\dfrac{(2x-3)^6}{12}$

    D. $\dfrac{(2x-3)^6}{3}$

84. If ROSE is coded as 6821, CHAIR is coded as 73456 and PREACH is coded as 961473, what will be the code for SEARCH?
    A. 246173
    B. 214673
    C. 216473
    D. 214763

KEJ

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KEJ

85. Ogive for more than type and less than type distributions intersect at
    A. Mean
    B. Median
    C. Mode
    D. Origin

86. The median of the observations 42, 72, 35, 92, 67, 85, 72, 81, 51, 56 is
    A. 69.5
    B. 72
    C. 64
    D. 61.5

87. If the sum of square of the values equals to 3390, Number of observations are 30 and Standard deviation is 7, what is the mean value of the above observations?
    A. 14
    B. 11
    C. 8
    D. 5

88. The mean of 50 observations is 36. If two observations 30 and 42 are to be excluded, then the mean of the remaining observations will be:
    A. 36
    B. 38
    C. 48
    D. 50

KEJ

P.T.O.

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KEJ

89. A sum of money is to be distributed among A, B, C, D in the proportion of 5:2:4: 3. If C gets ₹ 1000 more than D, what is B's share?

   A. 2000

   B. 1500

   C. 2500

   D. 1000

90. By simplifying $\left(2a^3 b^4\right)^2 \div \left(\left(4a^3 b\right)^2 \times \left(a^2 b^2\right)\right)$, the answer will be

   A. $4a^5 b^5$

   B. $4a^8 b^{10}$

   C. $4a^{10} b^{10}$

   D. $4a^{10} b^{20}$

91. A group of 400 soldiers posted at border area had a provision for 31 days. After 28 days 280 soldiers from this group were called back. Find the number of days for which the remaining ration will be sufficient?

   A. 3

   B. 6

   C. 8

   D. 10

92. The solution of the following system of linear equations: $2x-5y+4=0$ and $2x+y-8=0$ will be

   A. (2, −3)

   B. (1, −3)

   C. (3, 2)

   D. (−2, 2)

KEJ

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KEJ

93. If $x^5 + y^5 - 5xy = 0$ then $\frac{dy}{dx}$ is

   A. $\frac{y+x^4}{x+y^4}$

   B. $\frac{y-x^4}{y^4-x}$

   C. $\frac{x-y^4}{x^4-y}$

   D. $\frac{x+y^4}{x^4+y}$

94. If Arithmetic Mean and Geometric Mean between two numbers are 5 and 4 respectively, then these numbers are

   A. 2 & 3

   B. 2 & 8

   C. 4 & 6

   D. 1 & 16

95. $\int_2^4 \frac{x\,dx}{x^2+1}$ is

   A. $\frac{1}{2}\log\left(\frac{17}{5}\right)$

   B. $2\log\left(\frac{17}{5}\right)$

   C. $\frac{1}{2}\log\left(\frac{5}{17}\right)$

   D. $2\log\left(\frac{5}{17}\right)$

KEJ

P.T.O.

96. If the variance of a random variable 'x' is 17, then what is variance of $y=2x+5$?

A. 34

B. 39

C. 68

D. 78

97. If the variance of given data is 12, and their mean value is 40, what is coefficient of variation (CV)?

A. 5.66%

B. 6.66%

C. 7.50%

D. 8.65%

98. In a given set if all data are of same value then variance would be:

A. 0

B. 1

C. −1

D. 0.5

99. If Arithmetic mean between two numbers is 5 and Geometric mean is 4 then what is the value of Harmonic mean?

A. 3.2

B. 3.4

C. 3.5

D. 3.6

100. The average age of 15 students in a class is 9 years. Out of them, the average age of 5 students is 13 years and that of 8 students is 5 years. What is the average of remaining 2 students?

A. 5 years

B. 9 years

C. 10 years

D. 15 years