Combined Graduate Level Examination (Tier-II), 2018

Roll No.	
Registration No.	
Name	
Test Venue	iON Digital Zone iDZ Hooghly
Test Time	3:00 PM - 5:00 PM
Test Date	14/09/2019
Subject	CGLE Tier II Paper III Statistics

Section : **Statistics**

Q.1 The prices (in ₹) of different yarns (per kg) in two consecutive years are as follows.

Commodity	Silk	Cotton	Jute	Rayon
Price (in 2016)	600	700	400	300
Price (in 2017)	700	600	480	270

By simple aggregative method, the net price changes in % is:

Ans ✔ 1. net increase of 2.5% in price.

✘ 2. net increase of 2% in price.

✘ 3. net decrease of 2% in price.

✘ 4. net decrease of 2.5% in price.

Question ID : **558101768**
Status : **Answered**
Chosen Option : **1**

Q.2 The average working hours per month of the staff aged over 50 years in a factory were 160 and that of the staff aged under 50 years were 210. The mean working hour per month of all the staff was 200. The ratio of the number of the staff aged over 50 to that of the staff aged under 50 is:

Ans ✘ 1. 3 : 1

✘ 2. 2 : 1

✘ 3. 1 : 3

✔ 4. 1 : 4

Question ID : **558101700**
Status : **Answered**
Chosen Option : **4**

Q.3 The 4th decile for the given data is:

x	f
0	1
1	9
2	26
3	59
4	72
5	52
6	29
7	7
8	1

Ans ✘ 1. 5

✘ 2. 3

✔ 3. 4

✘ 4. 7

Question ID : **558101704**
Status : **Not Answered**
Chosen Option : **--**

Q.4 The Mean deviation about Median for the given data.

52, 56, 66, 70, 75, 80, 82 is:

Ans
✔ 1. 9
✘ 2. 7
✘ 3. 3
✘ 4. 6

> Question ID : **558101711**
> Status : **Answered**
> Chosen Option : **1**

Q.5 For a random variable x, the central moments (μ_i) of all order exist. The square of $(2j+1)^{th}$ moment (μ_{2j+1}^2) is always:

Ans
✘ 1. More than $\mu_{2j}\mu_{2j+2}$
✔ 2. Less than or equal to $\mu_{2j}\mu_{2j+2}$
✘ 3. More than or equal to $\mu_{2j}\mu_{2j+2}$
✘ 4. Less than $\mu_{2j}\mu_{2j+2}$

> Question ID : **558101720**
> Status : **Not Attempted and Marked For Review**
> Chosen Option : **--**

Q.6 The memory-less property is followed by which of the following continuous distribution:

Ans
✘ 1. Continuous uniform distribution
✘ 2. Normal distribution
✘ 3. Gamma distribution
✔ 4. Exponential distribution

> Question ID : **558101694**
> Status : **Not Answered**
> Chosen Option : **--**

Q.7 If the random sample of size n is drawn without replacement from a finite population of size N, the correction factor for standard error of sample mean will be:

Ans
✘ 1. $\frac{N-1}{N-n}$
✘ 2. $\sqrt{\frac{N-1}{N-n}}$
✔ 3. $\sqrt{\frac{N-n}{N-1}}$
✘ 4. $\frac{N-n}{N-1}$

> Question ID : **558101780**
> Status : **Not Answered**
> Chosen Option : **--**

Q.8 The Excess Kurtosis of the Geometric distribution with parameter p is:

Ans
✘ 1. $4 + \frac{p^2}{1-p}$
✘ 2. $6 - \frac{p^2}{1-p}$
✔ 3. $6 + \frac{p^2}{1-p}$
✘ 4. $4 - \frac{p^2}{1-p}$

> Question ID : **558101716**
> Status : **Not Answered**
> Chosen Option : **--**

Q.9 Let $\{X_i, i \geq 1\}$ be independent and identically distributed random variables with $P(X_i = 1) = p = 1 - P(X_i = 0)$, $S_n = \sum_{i=1}^n X_i$. The distribution of S_n is:

Ans
✘ 1. Geometric distribution with parameter p
✘ 2. Bernoulli distribution with parameter p

✔ 3. Binomial distribution with parameter n and p

✘ 4. Bernoulli distribution with parameter np

Question ID : **558101689**
Status : **Not Answered**
Chosen Option : **--**

Q.10 Which one is parameter from population?

Ans ✘ 1. $\bar{X}$

✔ 2. σ

✘ 3. S

✘ 4. p

Question ID : **558101779**
Status : **Not Answered**
Chosen Option : **--**

Q.11 For the given figures of production of a sugar factory, the estimate of the production for 1976 using straight line trend with origin at the year 1972 by the least squares method ($\sum x = 0, \sum x^2 = 28, \sum xy = 56$) is:

Year	Production ('000 tons) (year)
1969	76
1970	87
1971	95
1972	81
1973	91
1974	96
1975	90

Ans ✘ 1. 88

✘ 2. 98

✔ 3. 96

✘ 4. 86

Question ID : **558101776**
Status : **Answered**
Chosen Option : **3**

Q.12 Which of the following methods is NOT used in computation of a seasonal index for time series?

Ans ✘ 1. Method of averages

✘ 2. Link relative method

✘ 3. Moving average method

✔ 4. Mathematical equations

Question ID : **558101775**
Status : **Answered**
Chosen Option : **2**

Q.13 The second and fourth moment about mean for a distribution are 4 and 18 respectively. What is the value of Pearson's coefficient of skewness β_2 ?

Ans ✘ 1. 0.875

✔ 2. 1.125

✘ 3. 1.25

✘ 4. 4.5

Question ID : **558101723**
Status : **Answered**
Chosen Option : **2**

Q.14 For the study purpose, the mean of the observations is 148 gm and standard deviation is 17.4 gm. Approximately, the coefficient of variation equals to:

Ans ✗ 1. 11

✗ 2. 14

✔ 3. 12

✗ 4. 13

Question ID : 558101792
Status : **Answered**
Chosen Option : **3**

Q.15 The variance of degenerate random variable is:

Ans ✔ 1. 0

✗ 2. c

✗ 3. 1

✗ 4. e^{ct}

Question ID : 558101690
Status : **Not Answered**
Chosen Option : **--**

Q.16 Statistics is not applicable to _____ observation.

Ans ✗ 1. classified

✗ 2. group

✔ 3. individual

✗ 4. monotonic

Question ID : 558101698
Status : **Answered**
Chosen Option : **4**

Q.17 The mode (correct to two decimal places) for the given data is:

Class-interval	Frequency
0-10	6
10-20	9
20-30	8
30-40	14
40-50	28
50-60	20
60-70	11
70-80	9

Ans ✗ 1. 39.34

✔ 2. 46.36

✗ 3. 28

✗ 4. 52.54

Question ID : 558101702
Status : **Answered**
Chosen Option : **2**

Q.18 Which of the following is NOT a way of the sampling?

Ans ✗ 1. Purposive sampling

✗ 2. Simple random sampling

✔ 3. Unsystematic sampling

✗ 4. Stratified sampling

Question ID : 558101778
Status : **Not Answered**
Chosen Option : **--**

Q.19 Five persons A, B, C, D and E occupy seats in a row at random. The probability that A and B sit next to each other is:

Ans

✗ 1. $\frac{1}{4}$

✗ 2. $\frac{1}{2}$

✓ 3. $\frac{2}{5}$

✗ 4. $\frac{1}{3}$

Question ID : **558101795**	
Status : **Not Answered**	
Chosen Option : **--**	

Q.20 A Poisson distribution has a double mode at $x = 1$ and $x = 2$. The probability for $x = 1$ or for $x = 2$ of these two values is:

Ans

✓ 1. $4e^{-2}$

✗ 2. e^{-2}

✗ 3. $2e^{-2}$

✗ 4. $3e^{-2}$

Question ID : **558101695**	
Status : **Answered**	
Chosen Option : **1**	

Q.21 With reference to index numbers, which of the following statements is true?

Ans

✗ 1.
Always have same value with different methods of construction

✓ 2. It is used for the base of planned economy.

✗ 3. International comparison is possible

✗ 4. Do not alter with better quality and/or obsolescence

Question ID : **558101767**	
Status : **Answered**	
Chosen Option : **2**	

Q.22 If a discrete random variable X follows uniform distribution and assumes only the values 8, 9, 11, 15, 18, 20, the value of $P(|X - 14| < 5)$ will be:

Ans

✗ 1. $\frac{1}{5}$

✗ 2. $\frac{1}{4}$

✗ 3. $\frac{1}{3}$

✓ 4. $\frac{1}{2}$

Question ID : **558101796**	
Status : **Not Answered**	
Chosen Option : **--**	

Q.23 Marshall-Edgeworth Index number:

Ans

✗ 1. does not satisfy only circular test of consistency

✓ 2.
does not satisfy both factor reversal test and circular test of consistency

✗ 3.
satisfies factor reversal test and circular test of consistency

✗ 4. does not satisfy only factor reversal test

Question ID : **558101772**	
Status : **Not Answered**	
Chosen Option : **--**	

Q.24 The curve obtained by joining the points, whose x-coordinates are the upper limits of the class interval and y-coordinates are corresponding cumulative frequencies is called:

Ans ✗ 1. Histogram

✔ 2. Ogive

✗ 3. Frequency Polygon

✗ 4. Pie curve

Question ID : **558101790**	
Status : **Answered**	
Chosen Option : **2**	

Q.25 The probability density function of a random variable X is $f(x) = \frac{\pi}{10} \sin \frac{\pi x}{5}$; $0 \le x \le 5$. The first quartile of X is:

Ans ✗ 1. $\dfrac{10}{3}$

✔ 2. $\dfrac{5}{3}$

✗ 3. $\dfrac{1}{5}$

✗ 4. $\dfrac{5}{2}$

Question ID : **558101746**	
Status : **Not Attempted and Marked For Review**	
Chosen Option : **--**	

Q.26 60% of the employees of a company are college graduates. Of these, 10% are in sales. Of the employees who did not graduate from college, 80% are in sales. The probability that an employee selected at random is in sales, is:

Ans ✗ 1. 0.46

✔ 2. 0.38

✗ 3. 0.62

✗ 4. 0.54

Question ID : **558101742**	
Status : **Answered**	
Chosen Option : **2**	

Q.27 By the method of moving averages, the seasonal index for four quarters equals to:

Ans ✔ 1. $\dfrac{Average}{Grand\ Average} \times 100$

✗ 2. $\dfrac{Average}{Grand\ Average} \times 4$

✗ 3. $\dfrac{Average}{Grand\ Average} \times 10$

✗ 4. $\dfrac{Average}{Grand\ Average}$

Question ID : **558101777**	
Status : **Answered**	
Chosen Option : **1**	

Q.28 If $r_{12} = +0.80$, $r_{13} = -0.40$ and $r_{23} = -0.56$, then the square of multiple correlation coefficient (correct to four decimal places) $R^2_{1.23}$ is equal to:

Ans ✔ 1. 0.6434

✗ 2. 0.7586

✗ 3. -0.436

✗ 4. 0.8021

Question ID : **558101766**	
Status : **Not Answered**	
Chosen Option : **--**	

Q.29 If the multiple correlation coefficient of X_1 on X_2 and X_3 is zero, then:

Ans ✗ 1. $r_{12} \ne 0, r_{13} = 0$

✗ 2. $r_{12} = 0, r_{13} \ne 0$

✗ 3. $r_{12} \ne 0, r_{13} \ne 0$

✔ 4. $r_{12} = 0, r_{13} = 0$

Question ID : **558101794**
Status : **Not Answered**
Chosen Option : **--**

Q.30 The null hypothesis in ANOVA one-way classification, the study of the variances due to k different sources, is:

Ans ✘ 1. $H_0 : \sigma_1 = \sigma_2 = \cdots = \sigma_k$

✘ 2. $H_0 :$ At least for one pair $\mu_i = \mu_j ; i, j = 1, 2, \dots k, i \neq j$

✘ 3. $H_0 :$ At least for one pair $\sigma_i = \sigma_j ; i, j = 1, 2, \dots k, i \neq j$

✔ 4. $H_0 : \mu_1 = \mu_2 = \cdots = \mu_k$

Question ID : **558101751**
Status : **Not Answered**
Chosen Option : **--**

Q.31 The limits of multiple correlation coefficient $R_{1.23}$ are:

Ans ✘ 1. -1 to 1

✔ 2. 0 to 1

✘ 3. -2 to 2

✘ 4. -1 to 0

Question ID : **558101758**
Status : **Answered**
Chosen Option : **1**

Q.32 Second differencing in time series can help to eliminate which trend?
    (I)   Quadratic trend
    (II)   Linear trend

Ans ✘ 1. Neither (I) nor (II)

✘ 2. Both (I) and (II)

✔ 3. Only (I)

✘ 4. Only (II)

Question ID : **558101788**
Status : **Answered**
Chosen Option : **3**

Q.33 The probability of getting 9 cards of the same suit in one hand at a game of bridge is:

Ans ✔ 1. $\dfrac{\binom{13}{9} \times \binom{39}{4} \times 4}{\binom{52}{13}}$

✘ 2. $\dfrac{\binom{13}{9}}{\binom{52}{13}}$

✘ 3. $\dfrac{\binom{13}{9} \times 4}{\binom{52}{13}}$

✘ 4. $\dfrac{\binom{13}{9} \times \binom{39}{4}}{\binom{52}{13}}$

Question ID : **558101738**
Status : **Answered**
Chosen Option : **2**

Q.34 Which of the following is NOT an approach for assigning the probability of the event?

Ans ✘ 1. Relative frequency approach

✔ 2. Personal approach

✗ 3. Classical approach

✗ 4. Statistical approach

Question ID : **558101737**
Status : **Answered**
Chosen Option : **2**

Q.35 $A, B,$ and C are three mutually exclusive and exhaustive events associated with a random experiment. If $P(B) = \frac{3}{2}P(A)$

and $P(C) = \frac{1}{2}P(B)$ then value of $P(A)$ is:

Ans

✗ 1. $\dfrac{1}{13}$

✗ 2. $\dfrac{2}{13}$

✔ 3. $\dfrac{4}{13}$

✗ 4. $\dfrac{3}{13}$

Question ID : **558101740**
Status : **Answered**
Chosen Option : **3**

Q.36 If Laspeyres price index of a commodity is 208 and Passche's price index of the same commodity is 52, the value of Fisher index number will be:

Ans

✔ 1. 104

✗ 2. 103

✗ 3. 105

✗ 4. 102

Question ID : **558101771**
Status : **Answered**
Chosen Option : **1**

Q.37 Following two statements are related to regression coefficient
  (I)   Independent of the change of origin
  (II)   Independent of the change of scale

Ans

✗ 1. Both (I) and (II) are correct

✔ 2. Only (I) is correct

✗ 3. Only (II) is correct

✗ 4. Neither (I) nor (II) is correct

Question ID : **558101763**
Status : **Answered**
Chosen Option : **3**

Q.38 For the recorded observation, the coefficient of variation is 0.2 and the variance is 16. The arithmetic mean is:

Ans

✗ 1. 18

✗ 2. 16

✔ 3. 20

✗ 4. 14

Question ID : **558101736**
Status : **Answered**
Chosen Option : **3**

Q.39 If X has Binomial distribution with parameters n and p such that $np = \lambda$, then $\lim\limits_{n \to \infty} b(x, n, p); x = 0, 1, 2, \ldots$ is equal to:

Ans

✔ 1. $\dfrac{e^{-\lambda}\lambda^x}{x!}, x = 0, 1, 2, \ldots$

✗ 2. Limit does not exist

✗ 3. 0

✗ 4. 1

Question ID : **558101693**
Status : **Answered**

Chosen Option : **1**

Q.40 The given table shows ANOVA two-way classification to test two types of cloths in fashion trends.

Source of Variations	SS	df	MSS	F-Ratio
Varieties A	280	2	140	42.04
Varieties B	α	3		γ
Error	20	β	3.33	
Total	640	11		

The respective values (correct to two decimal places) of (α, β, γ) are:

Ans
✔ 1. $(340, 6, 34.03)$

✘ 2. $(240, 6, 34.03)$

✘ 3. $(340, 6, 113.03)$

✘ 4. $(240, 6, 113.03)$

Question ID : **558101754**
Status : **Not Answered**
Chosen Option : **--**

Q.41 The arithmetic mean of marks of the students for the given data is:

Marks	No. of students
0-10	12
10-20	18
20-30	27
30-40	20
40-50	17
50-60	6

Ans
✘ 1. 38

✘ 2. 48

✘ 3. 18

✔ 4. 28

Question ID : **558101699**
Status : **Answered**
Chosen Option : **4**

Q.42 The approximate median of the Poisson distribution with parameter λ is:

Ans
✘ 1. $\lambda + \frac{1}{3} + \frac{1}{50\lambda}$

✘ 2. $\sqrt{\lambda + \frac{1}{3} - \frac{1}{50\lambda}}$

✔ 3. $\lambda + \frac{1}{3} - \frac{1}{50\lambda}$

✘ 4. $\lambda + \frac{1}{3} + \sqrt{\frac{1}{50\lambda}}$

Question ID : **558101715**
Status : **Not Answered**
Chosen Option : **--**

Q.43 If $X_1, X_2, \ldots, X_n$ is a simple random sample without replacement of size n from a finite population of N units with mean μ and variance σ^2, the covariance of (X_i, X_j) will be:

Ans
✘ 1. $\frac{-\sigma^2}{N-1}$

✘ 2. $\frac{\sigma^2}{N-1}$

✔ 3. $\frac{\sigma^2}{n-1}$

✘ 4. $\frac{-\sigma^2}{n-1}$

Question ID : **558101781**

Status : **Not Answered**
Chosen Option : **--**

Q.44 Which of the following approaches does multiplicative model have for the component of Time series Secular trend (T), Seasonal variation (S), Cyclical fluctuation (C) and Irregular movement (I)?

Ans ✗ 1. $T \times S \times C + I$

✗ 2. $T + S \times C \times I$

✔ 3. $T \times S \times C \times I$

✗ 4. $T \times S + C \times I$

Question ID : **558101773**
Status : **Not Answered**
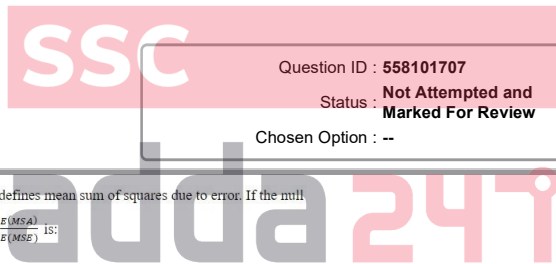Chosen Option : **--**

Q.45 Let x and y be two variables with variance as 1990 and 796 with 11 and 9 number of observations respectively. The value of F(10, 8) at 5% level of significance is:

Ans ✗ 1. 2.1

✔ 2. 2.5

✗ 3. 1

✗ 4. 0.4

Question ID : **558101750**
Status : **Not Answered**
Chosen Option : **--**

Q.46 If Arithmetic mean and coefficient of variation of x are 10 and 40 respectively, then the variance of y = 10-2x is:

Ans ✗ 1. 32

✔ 2. 64

✗ 3. 22

✗ 4. 16

Question ID : **558101707**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.47 Let MSA defines mean sum of squares due to factor A and MSE defines mean sum of squares due to error. If the null hypothesis of ANOVA for one way classification is not true, then $\frac{E(MSA)}{E(MSE)}$ is:

Ans ✗ 1. equal to -1

✔ 2. more than 1

✗ 3. equal to 1

✗ 4. less than 1

Question ID : **558101752**
Status : **Not Answered**
Chosen Option : **--**

Q.48 As per the given data, Laspeyres price index for the year 2006 is:

Commodities	Quantities		Price per unit	
	2005	2006	2005	2006
A	3	5	2.0	2.5
B	4	6	2.5	3.0
C	2	3	3.0	2.5

Ans ✗ 1. 121.36

✗ 2. 101.36

✔ 3. 111.36

✗ 4. 100.36

Question ID : **558101769**
Status : **Answered**
Chosen Option : **3**

Q.49 If $Z_1, Z_2, \ldots, Z_n$ are n independent standard normal variates, then $\sum_{i=1}^{n} Z_i^2$ will follow:

Ans   ✗ 1. chi-squared distribution with degree of freedom $2n$

   ✗ 2. F distribution with degree of freedom (n, n)

   ✔ 3. chi-squared distribution with degree of freedom n

   ✗ 4. t distribution with degree of freedom n

> Question ID : **558101782**
> Status : **Not Answered**
> Chosen Option : **--**

Q.50 The coefficient of correlation is r between X and Y having standard deviation σ_X and σ_Y. The tangent of the angle between two lines of regression is:

Ans   ✗ 1. $\dfrac{1-r^2}{r}$

   ✗ 2. $\dfrac{1-r^2}{r}\,\sigma_X\sigma_Y$

   ✗ 3. $\dfrac{1-r^2}{r}\,\dfrac{\sigma_X\sigma_Y}{\sigma_{X} + \sigma_Y}$

   ✔ 4. $\dfrac{1-r^2}{r}\,\dfrac{\sigma_X\sigma_Y}{\sigma_X^2+\sigma_Y^2}$

> Question ID : **558101764**
> Status : **Answered**
> Chosen Option : **4**

Q.51 The incomes of the employees in a state is assumed to be normally distributed with mean ₹15,000 and variance ₹900. The median of the distribution of the income is:

Ans   ✗ 1. ₹900

   ✔ 2. ₹15,000

   ✗ 3. ₹16.67

   ✗ 4. ₹0

> Question ID : **558101730**
> Status : **Answered**
> Chosen Option : **2**

Q.52 For a normal distribution, which of the following is true?

Ans   ✗ 1. $mean \neq median = mode$

   ✔ 2. $mean = median = mode$

   ✗ 3. $mean = median \neq mode$

   ✗ 4. $mean = mode \neq mode$

> Question ID : **558101697**
> Status : **Answered**
> Chosen Option : **2**

Q.53 The mode of a geometric distribution with parameter p is:

Ans   ✗ 1. $\dfrac{1}{p}$

   ✔ 2. 1

   ✗ 3. $\left[-\dfrac{1}{\log_2(1-p)}\right]$

   ✗ 4. $\dfrac{2-p}{\sqrt{1-p}}$

> Question ID : **558101706**
> Status : **Not Answered**
> Chosen Option : **--**

Q.54 Let M, M_d, M_0 denote mean, median and mode and Q_1, Q_2 and Q_3 quartile points. Which of the following is an absolute measure of skewness?

Ans   ✗ 1. $S_k = M + M_0$

   ✗ 2. $S_k = M + M_d$

✗ 3. $S_k = (Q_3 - M_d) + (M_d - Q_1)$

✔ 4. $S_k = \dfrac{[(Q_3 - M_d) - (M_d - Q_1)]}{Q_3 - Q_1}$

Question ID : **558101721**
Status : **Answered**
Chosen Option : **4**

Q.55 The second quartile for the following data 38, 39, 40, 52, 59, 67, 73, 77, 149, 248 is:

Ans
✗ 1. 61
✔ 2. 63
✗ 3. 62
✗ 4. 64

Question ID : **558101791**
Status : **Answered**
Chosen Option : **2**

Q.56 With reference to analysis of variance, which of the following statements is/are correct?
    (I)   Change of origin will affect the value of F.
    (II)   Change of scale will affect the value of F.

Ans
✗ 1. Neither (I) nor (II)

✔ 2. Only (I)

✗ 3. Only (II)

✗ 4. Both (I) and (II)

Question ID : **558101756**
Status : **Not Answered**
Chosen Option : **--**

Q.57 Which of the following is a sources of primary data?

Ans
✗ 1. Reports of committees and commissions

✔ 2. Information from correspondents

✗ 3. Newspapers and magazines

✗ 4. Official publications of central and state government

Question ID : **558101731**
Status : **Answered**
Chosen Option : **2**

Q.58 For a distribution with mean, median, mode and standard deviation 25, 24, 26 and 5 respectively, Karl Pearson's coefficient of skewness equals to:

Ans
✔ 1. -0.20
✗ 2. 0.20
✗ 3. 1
✗ 4. -1

Question ID : **558101722**
Status : **Answered**
Chosen Option : **1**

Q.59 The product of partial regression coefficient $b_{12.3} b_{23.1} b_{31.2}$ equals to:

Ans
✗ 1. $\dfrac{r_{12.3} + r_{23.1} + r_{31.2}}{3}$

✗ 2. $\left(r_{12.3} r_{23.1} r_{31.2} \right)^{\frac{1}{2}}$

✗ 3. $\dfrac{1}{r_{12.3}} + \dfrac{1}{r_{23.1}} + \dfrac{1}{r_{31.2}}$

✔ 4. $r_{12.3} r_{23.1} r_{31.2}$

Question ID : **558101765**

Status : **Not Answered**

Chosen Option : --

Q.60 If $x_i | f_i, i = 1, 2, \ldots n$ is a frequency distribution with standard deviation 15 and mean 30, the coefficient of variation will be equal to:

Ans   ✗ 1.   2

      ✗ 2.   200

      ✗ 3.   0.5

      ✔ 4.   50

Question ID : **558101714**

Status : **Answered**

Chosen Option : **4**

Q.61 At a reservation counter, passengers are arriving for booking the tickets in a Poisson fashion with mean rate 60 per hour. The kurtosis of the inter-arrival times of the passengers is:

Ans   ✗ 1.   1

      ✗ 2.   0.1

      ✗ 3.   60

      ✔ 4.   6

Question ID : **558101729**

Status : **Not Attempted and Marked For Review**

Chosen Option : --

Q.62 Completely randomised design is based on the principles of _____ and randomisation only.

Ans   ✗ 1.   Divisibility

      ✔ 2.   Replication

      ✗ 3.   Local Control

      ✗ 4.   Compounding

Question ID : **558101755**

Status : **Not Answered**

Chosen Option : --

Q.63 If $\sum p_0 q_0 = 160$, $\sum p_0 q_1 = 250$, $\sum p_1 q_0 = 200$ and $\sum p_1 q_1 = 288$, then Fisher ideal index number is equal to:

Ans   ✗ 1.   125

      ✗ 2.   115.2

      ✗ 3.   119.02

      ✔ 4.   120

Question ID : **558101770**

Status : **Answered**

Chosen Option : **4**

Q.64 Completely Randomised Design provides maximum number of degree of freedom for the:

Ans   ✗ 1.   Observations

      ✔ 2.   Error sum of squares

      ✗ 3.   Calculations

      ✗ 4.   Experiment

Question ID : **558101753**

Status : **Not Answered**

Chosen Option : --

Q.65 At a round table, n persons are seated on n chairs. The probability that two friends from same college are sitting next to each other, is:

Ans   ✗ 1. $\dfrac{2}{n}$

      ✗ 2. $\dfrac{1}{n-1}$

      ✗ 3. $\dfrac{1}{n}$

✓ 4. $\frac{2}{n-1}$

Question ID : **558101739**
Status : **Not Answered**
Chosen Option : **--**

Q.66 If $p(x) = \begin{cases} \frac{x}{15}; x = 1,2,3,4,5 \\ 0; \text{elsewhere} \end{cases}$, the probability $P\left\{\frac{1}{2} < X < \frac{5}{2}\right\}$ is equal to:

Ans ✗ 1. $\frac{2}{5}$

✗ 2. $\frac{3}{5}$

✗ 3. $\frac{4}{15}$

✓ 4. $\frac{1}{5}$

Question ID : **558101744**
Status : **Answered**
Chosen Option : **4**

Q.67 The first four moments of a distribution about the origin are $-1.5, 17, -30$ and 108. The third moment about the mean is:

Ans ✓ 1. 39.75

✗ 2. 41.75

✗ 3. 40.75

✗ 4. 42.75

Question ID : **558101718**
Status : **Not Answered**
Chosen Option : **--**

Q.68 Let $M, M_d, M_0, Q_1, Q_2, Q_3$ be the mean, median, mode and quartile points for different data points. Skewness is negative if:

Ans ✓ 1. $Q_3 + Q_1 > 2M_d$

✗ 2. $Q_3 + Q_1 > M_d$

✗ 3. $M > M_0$

✗ 4. $M > M_d$

Question ID : **558101724**
Status : **Answered**
Chosen Option : **1**

Q.69 A dice was thrown 400 times and 'six' resulted 80 times. The data is used to justify the hypothesis of an unbiased dice at 95% confidence. With reference to the given case, which of the following statements is correct?

Ans ✗ 1. H_0 is rejected.

✗ 2. The test statistic value is 0.0186.

✓ 3. H_0 is accepted.

✗ 4. The standard error of p is 1.77.

Question ID : **558101786**
Status : **Not Answered**
Chosen Option : **--**

Q.70 The sample sizes for two cases were 15 each with means as 104 and 114 respectively and variances as 290 and 510 respectively.
Let the null hypothesis is that the two population means are equal, then the value of t-statistic is:

Ans ✓ 1. 0.097

✗ 2. 0.97

✗ 3. 0.079

✗ 4. 0.79

Question ID : **558101785**
Status : **Not Answered**
Chosen Option : **--**

Q.71 The variation among the observations of each specific class is known as:

Ans ✗ 1. total number of classes

✗ 2. variability between classes

✗ 3. random cause

✓ 4. variability within classes

Question ID : **558101747**	
Status : **Answered**	
Chosen Option : **4**	

Q.72 If $n_1 = 10$ and $n_2 = 5$ are the sizes, $\bar{x}_1 = 7$ and $\bar{x}_2 = 4$ are the means and $\sigma_1 = 1$ and $\sigma_2 = 1$ are the standard deviations of two series of data. If combined mean $\bar{x} = 6$, then the variance of the combined series with size $n_1 + n_2$ is equal to:

Ans ✓ 1. 3

✗ 2. 1

✗ 3. 2

✗ 4. 9

Question ID : **558101712**	
Status : **Not Answered**	
Chosen Option : **--**	

Q.73 The empirical relation between mean (M), median (M_d), and mode (M_0) is:

Ans ✓ 1. $M_0 = 3M_d - 2M$

✗ 2. $M_0 = 2M_d - 3M$

✗ 3. $M_0 = 2M_d + 3M$

✗ 4. $M_0 = 3M_d + 2M$

Question ID : **558101727**	
Status : **Answered**	
Chosen Option : **1**	

Q.74 X and Y are independent normal variables with mean 50 and 80 respectively and standard deviation as 4 and 3 respectively. What is the distribution of X + Y?

Ans ✗ 1. N(130, 7)

✗ 2. N(130, 3)

✓ 3. N(130, 5)

✗ 4. N(130, 4)

Question ID : **558101745**	
Status : **Answered**	
Chosen Option : **3**	

Q.75 The coefficient of correlation is the _____ of coefficients of regression.

Ans ✗ 1. reciprocal of product

✗ 2. arithmetic mean

✓ 3. geometric mean

✗ 4. harmonic mean

Question ID : **558101762**	
Status : **Answered**	
Chosen Option : **3**	

Q.76 Which of the following satisfies the time and factor reversal test?

Ans ✗ 1. Laspeyres index

✗ 2. averaging the unweighted price relatives

✗ 3. Passche's index

✓ 4. Fisher ideal index

Question ID : **558101789**	
Status : **Answered**	

Chosen Option : **4**

Q.77 For a distribution, mean is 40, median is 40.5 and mode is 41. The distribution is:

Ans ✔ 1. negatively skewed

✘ 2. normal

✘ 3. positively skewed

✘ 4. mesokurtic

Question ID : **558101728**
Status : **Answered**
Chosen Option : **1**

Q.78 The following observations 14, 19, 17, 20, 25 constitute a random sample from an unknown population with mean μ
and standard deviation σ .
The point estimation of population mean is:

Ans ✘ 1. 17

✘ 2. 20

✔ 3. 19

✘ 4. 18

Question ID : **558101783**
Status : **Not Answered**
Chosen Option : **--**

Q.79 The mean deviation from an average A will be minimum, if A represents:

Ans ✔ 1. Median

✘ 2. Harmonic mean

✘ 3. Mode

✘ 4. Arithmetic mean

Question ID : **558101709**
Status : **Answered**
Chosen Option : **4**

Q.80 A man pedals cycle from his house to his office at a speed of 10 km/h and back from the office to his house at a speed of
15 km/h. His average speed (in km/h) is:

Ans ✘ 1. 12.5

✘ 2. 12.8

✔ 3. 12

✘ 4. 13

Question ID : **558101703**
Status : **Answered**
Chosen Option : **3**

Q.81 For a distribution, the mean is 10, variance is 16, γ_1 is +1 and β_2 is 4. The distribution is:

Ans ✔ 1. leptokurtic

✘ 2. platykurtic

✘ 3. normal

✘ 4. mesokurtic

Question ID : **558101726**
Status : **Answered**
Chosen Option : **1**

Q.82 The problem of statistics is given in two sections of same standard. The odds against for section X to solve the problem
are 4 : 3 and odds in favour to section Y for solving the same problem are 7 : 8. The probability that neither section
solves the problem of statistics, if both sections try independent of each other, is:

Ans ✘ 1. $\dfrac{21}{105}$

✔ 2. $\dfrac{32}{105}$

✘ 3. $\dfrac{84}{105}$

✗ 4. $\dfrac{73}{105}$

Question ID : **558101741**

Status : **Not Attempted and Marked For Review**

Chosen Option : **--**

Q.83 If the marks obtained by 500 candidates in statistics paper is given below, then the lower quartile mark is:

Marks more than	No. of Candidates
0	500
10	460
20	400
30	200
40	100
50	30

Ans

✔ 1. 21.25

✗ 2. 300

✗ 3. 125

✗ 4. 20.25

Question ID : **558101705**

Status : **Answered**

Chosen Option : **1**

Q.84 $\mu'_{(r)}$ and μ'_r represent the factorial moment of order r about the origin and r^{th} moment about the origin of the distribution $x_i | f_i, i = 1, 2, \ldots n$. The value of μ'_2 equals to:

Ans

✗ 1. $\mu'_{(1)}{}^2$

✗ 2. $\mu'_{(2)} - \mu'_{(1)}$

✔ 3. $\mu'_{(2)} + \mu'_{(1)}$

✗ 4. $\mu'_{(2)}$

Question ID : **558101719**

Status : **Not Answered**

Chosen Option : **--**

Q.85 For making frequency distribution, the number of classes used depends upon:

Ans

✗ 1. size of responses

✗ 2. experiment condition

✔ 3. size of class

✗ 4. number of observation

Question ID : **558101734**

Status : **Answered**

Chosen Option : **1**

Q.86 If the independent random variables X, Y are Binomially distributed with $n = 3, p = \frac{1}{3}$ and $n = 5, p = \frac{1}{3}$ respectively, then the probability of $(X + Y \geq 1)$ is:

Ans

✗ 1. $1 - \left(\frac{2}{3}\right)^6$

✗ 2. $1 - \left(\frac{1}{3}\right)^8$

✔ 3. $1 - \left(\frac{2}{3}\right)^8$

✗ 4. $1 - \left(\frac{1}{3}\right)^6$

Question ID : **558101692**

Status : **Not Answered**

Chosen Option : **--**

Q.87 With which characteristic movement of a time series would you associate increasing demand of smaller automobiles?

Ans

✔ 1. Secular trend

✗ 2. Cyclical fluctuation

✗ 3. Regular movement

✗ 4. Seasonal variation

Question ID : **558101774**
Status : **Answered**
Chosen Option : **1**

Q.88 For the discrete distribution, the Pearson's coefficient of skewness β_2 is always:

Ans

✗ 1. $\beta_2 < 1$

✗ 2. $\beta_2 = 1$

✗ 3. $\beta_2 < -1$

✓ 4. $\beta_2 > 1$

Question ID : **558101717**
Status : **Not Answered**
Chosen Option : **--**

Q.89 The square of normal variate with mean 0 and variance 1 follows:

Ans

✗ 1. Beta distribution with $\alpha = 0$ and $\beta = 1$

✗ 2. Student's t-distribution with mean 0 and variance 1

✗ 3. Normal distribution with mean 0 and variance 1

✓ 4. Chi-squared distribution with degree of freedom 1

Question ID : **558101688**
Status : **Not Answered**
Chosen Option : **--**

Q.90 Approximately, the coefficient of variation for the given data where Pearson's second measure of skewness = 0.42, arithmetic mean = 86 and median = 80, is:

Ans

✗ 1. 53

✗ 2. 51

✓ 3. 50

✗ 4. 52

Question ID : **558101793**
Status : **Answered**
Chosen Option : **3**

Q.91 In one way ANOVA, σ^2 is estimated by:

Ans

✓ 1. mean square within groups

✗ 2. s^2

✗ 3. sum of squares between groups

✗ 4. mean square between groups

Question ID : **558101787**
Status : **Not Answered**
Chosen Option : **--**

Q.92 If ten coins are tossed simultaneously, then the probability of getting at most 1 head is:

Ans

✗ 1. $\frac{1}{1024}$

✗ 2. $\frac{2}{1024}$

✓ 3. $\frac{11}{1024}$

✗ 4. $\frac{10}{1024}$

Question ID : **558101691**
Status : **Answered**
Chosen Option : **1**

Q.93 Which of the following is NOT a type of data classification?

Ans
- ✗ 1. Qualitative classification
- ✗ 2. Chronological classification
- ✗ 3. Geographical classification
- ✔ 4. Mathematical classification

> Question ID : **558101732**
> Status : **Answered**
> Chosen Option : **4**

Q.94 If the occurrence of events follows Poisson Process with mean rate λ, then inter-occurrence time of events will follow:

Ans
- ✗ 1. Geometric distribution
- ✗ 2. Poisson distribution
- ✔ 3. Exponential distribution
- ✗ 4. Gamma distribution

> Question ID : **558101687**
> Status : **Not Answered**
> Chosen Option : **--**

Q.95 A random sample of 100 ball bearings selected from a shipment of 2000 ball bearing has an average diameter of 0.354 inches with standard deviation 0.048 inches. The 95% confidence interval for the average diameter of these 2000 ball bearings is:

Ans
- ✗ 1. $0.354 \pm 1.96 \times 0.048$
- ✔ 2. $0.354 \pm 1.96 \times 0.0047$
- ✗ 3. 0.354 ± 0.048
- ✗ 4. $0.048 \pm 1.96 \times 0.354$

> Question ID : **558101784**
> Status : **Not Answered**
> Chosen Option : **--**

Q.96 The median for the given frequency distribution is:

x	f
1	8
2	10
3	11
4	16
5	20
6	25
7	15
8	9
9	6

Ans
- ✗ 1. 20
- ✔ 2. 5
- ✗ 3. 4
- ✗ 4. 65

> Question ID : **558101701**
> Status : **Answered**
> Chosen Option : **2**

Q.97 In Spearman rank correlation coefficient $r_s = 1 - \frac{6\sum d^2}{n(n^2-1)}$, the maximum value of $\sum d^2$ in case of untied ranks is:

Ans
- ✗ 1. $\frac{1}{2}(n^2 - 1)$
- ✗ 2. $\frac{1}{4}n(n^2 - 1)$
- ✗ 3. n
- ✔ 4. $\frac{1}{3}n(n^2 - 1)$

> Question ID : **558101759**

Status : **Not Answered**

Chosen Option : **--**

Q.98 If $x = X - \bar{X}$ and $y = Y - \bar{Y}$ and the number of pairs (X, Y) is n, then the Karl Pearson's coefficient of correlation is:

Ans

✘ 1. $\dfrac{n\sum xy}{\sqrt{\sum x^2 \sum y^2}}$

✘ 2. $\dfrac{\sum xy}{(\sum x^2 \sum y^2)^{\frac{1}{n}}}$

✔ 3. $\dfrac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$

✘ 4. $\dfrac{\sum xy}{n\sum x^2 \sum y^2}$

Question ID : **558101757**

Status : **Answered**

Chosen Option : **3**

Q.99 For a group of 100 students, the mean and standard deviation of scores were found to be 30 and 5 respectively. Later on it was discovered that the scores 34 and 53 were misread as 43 and 35 respectively. The corrected mean equals to:

Ans

✔ 1. 30.09

✘ 2. 30.01

✘ 3. 30.41

✘ 4. 30.05

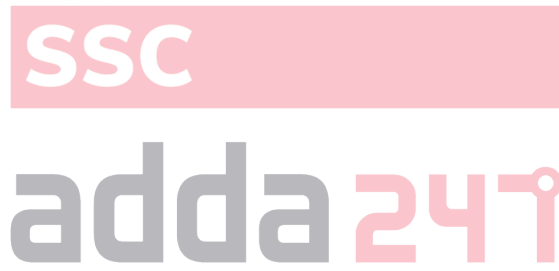Question ID : **558101713**

Status : **Answered**

Chosen Option : **1**

Q.100 The given table shows the ranking of ten students in two subjects mathematics and statistics.

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

The coefficient of rank correlation is:

Ans

✔ 1. -0.3

✘ 2. -0.1

✘ 3. 0.1

✘ 4. 0.3

Question ID : **558101761**

Status : **Answered**

Chosen Option : **1**