

SSC CGL 2019 TIER 2 NOVEMBER 17, 2020 SHIFT 1 STATISTICS QUESTION PAPER

Exam Date	17/11/2020
Exam Time	10:00 AM - 12:00 PM
Subject	CGLE Tier II Paper III Statistics

Section : Statistics

Q.1 एज़वर्थ-मार्शल इंडेक्स नंबर _____ का समांतर माध्य होती है।

- Ans
- ☒ 1. केली की सूचकांक संख्या और वाल्श की सूचकांक संख्या
 - ☒ 2. पाशे की सूचकांक संख्या और फिशर की सूचकांक संख्या
 - ☒ 3. लैस्पियर की सूचकांक संख्या और फिशर की सूचकांक संख्या
 - ☒ 4. पाशे की सूचकांक संख्या और लैस्पियर की सूचकांक संख्या

Question ID : 6549781922

Status : Answered

Chosen Option : 4

Q.2 The systematic (methodological) arrangement of the statistical data in columns or rows is called:

- Ans
- ☒ 1. nature of the data
 - ☒ 2. tabulation of the data
 - ☒ 3. classification of the data
 - ☒ 4. categorisation of the data

Question ID : 6549781883

Status : Answered

Chosen Option : 2

Q.3 The chance that a software engineer will debug an error X correctly is 80%. The chance that a software with the error X will crash after the correct debugging is 30%. The chance of crash of the software by wrong debugging is 70%. A software with the error X crashed. The probability that its error was debugged correctly is:

Ans

✗ 1. $\frac{7}{12}$

✗ 2. $\frac{7}{19}$

✗ 3. $\frac{6}{19}$

✓ 4. $\frac{12}{19}$

Question ID : 6549781893

Status : **Not Answered**

Chosen Option : --

Q.4 The first four raw moments of distribution are 2, 136, 320, and 40,000. The coefficient of skewness is:

Ans

✗ 1. $\frac{40656}{(132)^2}$

✗ 2. $\frac{(40656)^2}{(132)^3}$

✗ 3. $\frac{-480}{(132)^2}$

✓ 4. $\frac{(-480)^2}{(132)^3}$

Question ID : 6549781875

Status : **Not Answered**

Chosen Option : --

Q.5 The coefficients of the regression $\hat{\mu}_{X|Y}$ and $\hat{\mu}_{Y|X}$ are known. The coefficient of correlation equals:

Ans

✗ 1. $\frac{1}{\hat{\mu}_{X|Y}\hat{\mu}_{Y|X}}$

✓ 2. $\pm \sqrt{\hat{\mu}_{X|Y}\hat{\mu}_{Y|X}}$

✗ 3. $\frac{2}{\frac{1}{\hat{\mu}_{X|Y}} + \frac{1}{\hat{\mu}_{Y|X}}}$

✗ 4. $\frac{\hat{\mu}_{X|Y} + \hat{\mu}_{Y|X}}{2}$

Question ID : 6549781912

Status : **Answered**

Chosen Option : 2

Q.6 The approximate harmonic mean of 8, 6, 12, 4 is:

- Ans
- ☒ 1. 5.40
 - ☒ 2. 4.40
 - ☒ 3. 7.40
 - ☒ 4. 6.40

Question ID : **6549781853**
Status : **Answered**
Chosen Option : **4**

Q.7 For a distribution, the percentile partition values are $P_{10} = 58.983$, $P_{50} = 61.345$ and $P_{90} = 63.831$. Kelly's coefficient of skewness is:

- Ans
- ☒ 1. 0.036
 - ☒ 2. 0.026
 - ☒ 3. 0.016
 - ☒ 4. 0.046

Question ID : **6549781872**
Status : **Answered**
Chosen Option : **2**

Q.8 For ANOVA two-way classification, to test two types of cloth in fashion trends, we have the following table.

Source of Variations	SS	df	MSS	F-Ratio
Variety A	280	2	140	42.04
Variety B	α	3		34.03
Error	20	β	3.33	
Total	640	11		

The values of (α, β) are:

- Ans
- ☒ 1. (240, 4)
 - ☒ 2. (240, 6)
 - ☒ 3. (340, 6)
 - ☒ 4. (340, 4)

Question ID : **6549781936**
Status : **Answered**
Chosen Option : **3**

Q.9 The PDF of babies' age is defined as $f(x) = \frac{3}{4}x(2-x); 0 < x < 2$. The 5th decile point of X is:

- Ans**
- ☒ 1. 1
 - ☐ 2. $\frac{3}{2}$
 - ☐ 3. $\frac{5}{4}$
 - ☐ 4. $\frac{3}{4}$

Question ID : **6549781880**
Status : **Answered**
Chosen Option : 1

Q.10 The interquartile range of continuous random variable X having PDF $f(x) = e^{-x}; x \geq 0$ is:

- Ans**
- ☐ 1. $\ln \frac{1}{2}$
 - ☒ 2. $\ln 3$
 - ☐ 3. $\ln 2$
 - ☐ 4. $\ln \frac{1}{3}$

Question ID : **6549781857**
Status : **Answered**
Chosen Option : 3

Q.11 If an event B has occurred and has $P(B) = 1$, the conditional probability $P(A|B)$ is equal to:

- Ans**
- ☐ 1. 0
 - ☒ 2. $P(A)$
 - ☐ 3. $P(B)$
 - ☐ 4. 1

Question ID : **6549781892**
Status : **Answered**
Chosen Option : 2

Q.12 "प्रायिकता निर्धारण के लिए बार-बार किए जाने वाले यादृच्छिक प्रयोगों के परिणामों को दर्ज करने की आवश्यकता होती है। इस सन्निकर्ष को _____ के रूप में जाना जाता है।

Ans ☒ 1. क्लासिकी सन्निकर्ष (Classical approach)

☒ 2. वस्तुनिष्ठ सन्निकर्ष (Objective approach)

☒ 3.

सापेक्ष बारंबारता सन्निकर्ष (Relative frequency approach)

☒ 4. व्यक्तिनिष्ठ सन्निकर्ष (Subjective approach)

Question ID : 6549781887

Status : Answered

Chosen Option : 3

Q.13 A box contains four soccer balls printed with numbers 112, 121, 211, 222. A footballer chooses one ball at random. Let A_1 be the event that the first digit of the printed number of the ball chosen is 1. Similarly, A_2 and A_3 denote that second as well as third digit of the printed number is 1. The events A_1, A_2 , and A_3 are:

Ans ☒ 1. independent events

☒ 2. dependent events

☒ 3. pairwise independent events

☒ 4. mutually exclusive events

Question ID : 6549781891

Status : Answered

Chosen Option : 4

Q.14 Let X be a standard normal distribution. The value of $E(X^3)$ is:

Ans ☒ 1. $(t^3 + 3t)e^{\frac{t^2}{2}}$

☒ 2. $t^3 e^{\frac{t^2}{2}}$

☒ 3. $e^{\frac{t^2}{2}}$

☒ 4. 0

Question ID : 6549781846

Status : Answered

Chosen Option : 1

Q.15 A chemical experiment was conducted to test the effects of three methods of purification of water on the pH factor. It was felt that climatic condition also affects the pH of water. The water body was divided into four blocks. A block represented a particular kind of climatic condition. At each block, three areas of equal volume were taken. The three areas at each block were assigned at random to the three methods of purification. The impurities, in ppm, were recorded. If $P(F \leq F_{n_1, n_2, 1-\alpha}) = 1 - \alpha$, the critical region to test the equality of mean purification of three methods at a 5% level of significance by randomised block design is:

- Ans**
- ☒ 1. $F \geq F_{2,6,0.95}$
 - ☐ 2. $F \geq F_{2,3,0.95}$
 - ☐ 3. $F \geq F_{2,3,0.05}$
 - ☐ 4. $F \geq F_{3,6,0.95}$

Question ID : **6549781903**
Status : **Not Answered**
Chosen Option : --

Q.16 In tossing a coin, let the probability of turning up a head be p . The hypotheses are $H_0: p = 0.4$ vs $H_1: p = 0.6$. H_0 is rejected if there are five or more heads in six tosses. Then the power of the test is:

- Ans**
- ☒ 1. 0.233
 - ☐ 2. 0.767
 - ☐ 3. 0.333
 - ☐ 4. 0.762

Question ID : **6549781926**
Status : **Not Answered**
Chosen Option : --

Q.17 Patients arrive at a clinic following the Poisson process, with the mean rate of 10 customers per hour. The inter-arrival time of a customer follows:

- Ans**
- ☐ 1. Geometric distribution
 - ☐ 2. Poisson distribution
 - ☒ 3. Exponential distribution
 - ☐ 4. Gamma distribution

Question ID : **6549781837**
Status : **Answered**
Chosen Option : 2

Q.18 Calculate Laspeyres price index for the year 2020 from the following data.

Commodities	Quantities		Price per unit	
	2019	2020	2019	2020
A	4	6	1.0	1.5
B	5	7	1.5	2.0
C	3	4	2.0	1.5

- Ans
- ☒ 1. 111.14
 - ☒ 2. 117.14
 - ☒ 3. 113.14
 - ☒ 4. 115.14

Question ID : **6549781934**
Status : **Answered**
Chosen Option : **2**

Q.19 If the data are skewed, which option of central tendency measure is the most unreliable indicator?

- Ans
- ☒ 1. Mean
 - ☒ 2. Median
 - ☒ 3. Range
 - ☒ 4. Mode

Question ID : **6549781849**
Status : **Answered**
Chosen Option : **2**

Q.20 If $\mu_4 = 199$, $\mu_3 = 50$ and $\mu_2 = 8$, then the value of excess kurtosis is;

- Ans
- ☒ 1. 1.109
 - ☒ 2. 0.109
 - ☒ 3. 3.109
 - ☒ 4. 2.109

Question ID : **6549781879**
Status : **Answered**
Chosen Option : **3**

Q.21 The report indicated that in 2020 the occurrence of smoking among adults was 21.1%. Data is collected from dominant smoking in $n = 3,536$ participants who attended the seventh examination of the offspring in the Framingham. Study indicated that 482 out of 3,536 i.e. 13.6% of the respondents were currently smoking at the time of the exam. We want to test whether the occurrence of smoking is lower in the Framingham Offspring sample, given the focus on cardiovascular health in that community. The value of appropriate test statistic is:

- Ans**
- ☒ 1. -1.93
 - ☒ 2. 1.093
 - ☒ 3. 1.93
 - ☒ 4. -10.93

Question ID : **6549781932**
Status : **Not Answered**
Chosen Option : --

Q.22 If the Bowley's coefficient of skewness is less than zero, then the distribution is:

- Ans**
- ☒ 1. positively-skewed
 - ☒ 2. negatively-skewed
 - ☒ 3. symmetric
 - ☒ 4. can't be determined

Question ID : **6549781873**
Status : **Answered**
Chosen Option : 2

Q.23 Among these options, which one is NOT an example of relative measure of dispersion?

- Ans**
- ☒ 1. Variance
 - ☒ 2. Coefficient of variation
 - ☒ 3. Coefficient of standard deviation
 - ☒ 4. Coefficient of quartile deviation

Question ID : **6549781886**
Status : **Answered**
Chosen Option : 1

Q.24 The data taken from the published report on 'Dropouts From School' will be considered as:

- Ans**
- ☒ 1. primary and secondary data
 - ☒ 2. neither primary nor secondary data
 - ☒ 3. primary data
 - ☒ 4. secondary data

Question ID : **6549781881**
Status : **Answered**
Chosen Option : 4

Q.25 For a distribution of student's height, the quartiles are 60.125, 61.345, 62.688. The absolute measure of skewness is:

- Ans
- ☒ 1. 0.321
 - ☒ 2. 0.312
 - ☒ 3. 0.231
 - ☒ 4. 0.123

Question ID : 6549781871

Status : Answered

Chosen Option : 1

Q.26 Let X and Y be two jointly continuous random variables with joint pdf $f_{XY}(x, y) = 10x^2y; 0 \leq y \leq x \leq 1$. The marginal density $f_Y(y)$ is:

- Ans
- ☒ 1. $\frac{10}{3}y^3(1-y); 0 \leq y \leq 1$
 - ☒ 2. $\frac{10}{3}y(1-y^2); 0 \leq y \leq 1$
 - ☒ 3. $\frac{10}{3}y^2(1-y^2); 0 \leq y \leq 1$
 - ☒ 4. $\frac{10}{3}y(1-y^3); 0 \leq y \leq 1$

Question ID : 6549781842

Status : Not Answered

Chosen Option : --

Q.27 For the moderately symmetrical distribution of age of the employees, mean = 20 and mode = 25. The approximate value of the median is:

- Ans
- ☒ 1. $21\frac{1}{3}$
 - ☒ 2. $21\frac{2}{3}$
 - ☒ 3. $22\frac{1}{3}$
 - ☒ 4. $22\frac{2}{3}$

Question ID : 6549781877

Status : Answered

Chosen Option : 2

Q.28 A and B are two events. $\bar{A}$ and $\bar{B}$ are their complement events, respectively, such that $\bar{A}\bar{B}$ and AB are two mutually exclusive and exhaustive events in which the event A can occur. Then which option is correct?

- Ans**
- ☒ 1. $P(A) = P(\bar{A}B) + P(A\bar{B})$
 - ☒ 2. $P(A) = P(AB) + P(A\bar{B})$
 - ☒ 3. $P(A) = P(\bar{A}) + P(A\bar{B})$
 - ☒ 4. $P(A) = 1$

Question ID : **6549781890**
Status : **Answered**
Chosen Option : **2**

Q.29 The rise in the number of patients due to heatstroke is an example of:

- Ans**
- ☒ 1. seasonal variation
 - ☒ 2. cyclical variation
 - ☒ 3. irregular variation
 - ☒ 4. Secular variation

Question ID : **6549781925**
Status : **Answered**
Chosen Option : **1**

Q.30 According to government data, 24 percent of teenagers in India under the age of 18 years live in households with incomes that are classified at a particular income level. A simple random sample of 400 teenagers in India under the age of 18 years was selected for a study of learning. If the government data is correct, which of the following best approximates the probability that at least 27 per cent of the teenagers in the sample live in households that are classified at a particular income level?

Ans

✗ 1. $P\left(z > \frac{0.24 - 0.27}{\sqrt{\frac{(0.24)(0.76)}{400}}}\right)$

✗ 2. $P\left(z > \frac{0.27 - 0.24}{\sqrt{\frac{(0.50)(0.50)}{400}}}\right)$

✗ 3. $P\left(z > \frac{0.27 - 0.24}{\sqrt{\frac{(0.27)(0.73)}{400}}}\right)$

✓ 4. $P\left(z > \frac{0.27 - 0.24}{\sqrt{\frac{(0.24)(0.76)}{400}}}\right)$

Question ID : 6549781894

Status : Answered

Chosen Option : 4

Q.31 Which index satisfies the factor reversal test?

Ans

✗ 1. Laspeyre's index

✓ 2. Fisher's ideal index

✗ 3. Walsh price index

✗ 4. Paasche's index

Question ID : 6549781920

Status : Answered

Chosen Option : 2

Q.32 The value of simple correlation coefficient lies in the interval:

- Ans
- ☒ 1. $[0,1]$
 - ☒ 2. $[-1,1]$
 - ☒ 3. $[1,\infty)$
 - ☒ 4. $(-\infty, -1]$

Question ID : **6549781907**
Status : **Answered**
Chosen Option : **2**

Q.33 A completely randomised design is based on the principles of _____ and randomisation only.

- Ans
- ☒ 1. divisibility
 - ☒ 2. compounding
 - ☒ 3. local control
 - ☒ 4. replication

Question ID : **6549781905**
Status : **Answered**
Chosen Option : **4**

Q.34 The length of time X , needed by an examinee of a competition to complete a 1-hour exam, is a random variable with

PDF $f(x) = \frac{6}{5}(x^2 + x); 0 \leq x \leq 1$. The value of $F(0.5)$ is:

- Ans
- ☒ 1. $\frac{4}{5}$
 - ☒ 2. $\frac{2}{5}$
 - ☒ 3. $\frac{3}{5}$
 - ☒ 4. $\frac{1}{5}$

Question ID : **6549781844**
Status : **Answered**
Chosen Option : **4**

Q.35 If X follows a binomial distribution with $n = 6$ and $p = \frac{1}{4}$, then the skewness of X is:

Ans

✗ 1. $\sqrt{\frac{2}{3}}$

✗ 2. $\frac{2}{\sqrt{3}}$

✓ 3. $\frac{\sqrt{2}}{3}$

✗ 4. $\frac{2}{3}$

Question ID : 6549781841

Status : Answered

Chosen Option : 3

Q.36 The second degree parabola is form fitting to the time series when the variations are:

Ans

✗ 1. Linear

✓ 2. Nonlinear

✗ 3. Random

✗ 4. Downward

Question ID : 6549781852

Status : Answered

Chosen Option : 1

Q.37 Mutual and unique variances among multiple factors can be embodied in a diagram that comprises overlapping circles. The diagram is known as:

Ans

✓ 1. ballantine diagram

✗ 2. homogeneity diagram

✗ 3. path diagram

✗ 4. 3-way scatterplot

Question ID : 6549781915

Status : Not Answered

Chosen Option : --

Q.38 Calculate the coefficient of range for the following series:

Item	10	12	14	16	18	20	22
Frequency	5	3	8	12	34	63	8

- Ans**
-  1. 0.17
 -  2. 0.27
 -  3. 0.37
 -  4. 0.47

Question ID : **6549781930**
Status : **Answered**
Chosen Option : **3**

Q.39 The rankings of ten students in two subjects, Mathematics and Statistics, are as follows.

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. 0.3
 -  3. 0.1
 -  4. -0.1

Question ID : **6549781933**
Status : **Answered**
Chosen Option : **1**

Q.40 A fisheries researcher intends to test for a difference in mean weights of a single kind of fish collected by fishermen in three different lakes. Which option is correct for the null hypothesis?

- Ans
- ☒ 1. Not all fish populations have the same mean.
 - ☒ 2. $\mu_1 = \mu_2 = \mu_3 = 0$
 - ☒ 3. $\mu_1 = \mu_2 = \mu_3$
 - ☒ 4. At least one of the fish populations has a different mean.

Question ID : **6549781901**
Status : **Answered**
Chosen Option : **3**

Q.41 The property that 'on changing the unit of measurement of a commodity the index number does not change' is called:

- Ans
- ☒ 1. test of equality
 - ☒ 2. test of homogeneity
 - ☒ 3. test of commensurability
 - ☒ 4. test of proportionality

Question ID : **6549781918**
Status : **Answered**
Chosen Option : **2**

Q.42 If the distribution is negatively skewed, then the:

- Ans
- ☒ 1. mean is more than the mode
 - ☒ 2. median is at right to the mode
 - ☒ 3. mean is less than the mode
 - ☒ 4. mean is at right to the median

Question ID : **6549781874**
Status : **Answered**
Chosen Option : **3**

Q.43 Which statement of the following is incorrect?

- Ans
- ☒ 1. Secondary data is attained when statistical methods are applied to the primary data.
 - ☒ 2. Primary data collection requires less amount of resources such as time, cost and manpower.
 - ☒ 3. Primary data is always precise to the researcher's needs.
 - ☒ 4. Data poised through primary sources are more reliable.

Question ID : **6549781848**
Status : **Not Answered**
Chosen Option : **--**

Q.44 Which of the following is a cross-sectional data?

- Ans ☒ 1. Share price of 5 companies on a particular day
☒ 2. Deposits of a bank over a period of time
☒ 3. Number of cars exported from India in the last 4 years
☒ 4. Net profit of a company in the last 3 years

Question ID : 6549781884
 Status : Answered
 Chosen Option : 1

Q.45 There were 25 employees in an office. The mean salary of the employees was ₹30,000 per month. A senior officer having a salary of ₹60,000 per month retired, and a new clerk was appointed in his place. The mean salary of the employees in the office was thus reduced by ₹1,000 per month. The salary of the new clerk (per month) was:

- Ans ☒ 1. ₹30,000
☒ 2. ₹25,000
☒ 3. ₹35,000
☒ 4. ₹40,000

Question ID : 6549781850
 Status : Answered
 Chosen Option : 2

Q.46 If the customers arrive in a shop in Poisson fashion with parameter λ , the fourth raw moment μ'_4 for the inter-arrival time is:

- Ans ☒ 1. $\frac{1}{\lambda^4}$
☒ 2. $\frac{4}{\lambda^4}$
☒ 3. $\frac{6}{\lambda^4}$
☒ 4. $\frac{24}{\lambda^4}$

Question ID : 6549781870
 Status : Not Answered
 Chosen Option : --

Q.47 The additive model of the time series is:

- Ans ☒ 1. $Y = a + bX$
☒ 2. $Y = TSCI$
☒ 3. $Y = a + bX + cX^2$
☒ 4. $Y = T + S + C + I$

Question ID : 6549781924
 Status : Answered
 Chosen Option : 4

Q.48 If, in a series, there are m items whose ranks are common, then which factor is added for correction for each repeating value in both the series?

Ans

☐ 1. $\frac{1}{12}m$

☒ 2. $\frac{1}{12}m(m-1)(m+1)$

☐ 3. $\frac{1}{12}(m-1)(m+1)$

☐ 4. $\frac{1}{12}m(m-1)$

Question ID : 6549781911

Status : Answered

Chosen Option : 2

Q.49 A discrete random variable X has the probability functions as:

x	0	1	2	3	4	5	6	7	8
$f(x)$	k	$2k$	$3k$	$5k$	$5k$	$4k$	$3k$	$2k$	k

The value of $E(X)$ is:

Ans

☐ 1. 97/26

☐ 2. 107/26

☐ 3. 93/26

☒ 4. 103/26

Question ID : 6549781931

Status : Answered

Chosen Option : 4

Q.50 If $Z \sim \Phi(0,1)$ is a standard normal variate, then Z^2 follows:

Ans

☐ 1. log-normal distribution with $\mu = 0$ and $\sigma = 1$

☒ 2. chi-squared distribution with degree of freedom 1

☐ 3. standard normal distribution with $\mu = 0$ and $\sigma = 1$

☐ 4. bi-standard normal distribution with $\mu = 0$ and $\sigma = 1$

Question ID : 6549781838

Status : Answered

Chosen Option : 3

Q.51 Which option is correct for the correlation ratio E^2 ?

- Ans
- ☒ 1. E takes the values between -1 and 1
 - ☒ 2. E takes the values between 0 and ∞
 - ☒ 3. E takes the values between $-\infty$ and ∞
 - ☒ 4. E takes the values between 0 and 1

Question ID : 6549781908

Status : Answered

Chosen Option : 1

Q.52 The first four moments about the mean of distribution are $0, \mu_2, 0.7$

and 18.75 . If the distribution is mesokurtic, the value of μ_2 is;

- Ans
- ☒ 1. 2.5
 - ☒ 2. 3.5
 - ☒ 3. 0.5
 - ☒ 4. 1.5

Question ID : 6549781876

Status : Answered

Chosen Option : 1

Q.53 Which of the following statements is correct?

- Ans
- ☒ 1. The sum of squares between classes is not independent of the change of origin
 - ☒ 2. The sum of squares within classes is not independent of the change of origin
 - ☒ 3. All the sum of squares are independent of the change of origin
 - ☒ 4. The total sum of squares is not independent of the change of origin

Question ID : 6549781900

Status : Answered

Chosen Option : 3

Q.54 The mean deviation from the average A is minimum if A represents:

- Ans
- ☒ 1. harmonic mean
 - ☒ 2. arithmetic mean
 - ☒ 3. mode
 - ☒ 4. median

Question ID : 6549781859

Status : Answered

Chosen Option : 4

Q.55 The graphical representation of the time series is known as:

- Ans
- ☐ 1. histogram
 - ☐ 2. ogive
 - ☐ 3. straight line
 - ☒ 4. historigram

Question ID : 6549781923
Status : Answered
Chosen Option : 2

Q.56 What percentage of scores falls within three standard deviations from the mean for the normal variate?

- Ans
- ☐ 1. 95%
 - ☒ 2. 99.7%
 - ☐ 3. 67.8%
 - ☐ 4. 50%

Question ID : 6549781847
Status : Not Answered
Chosen Option : --

Q.57 If X is a Poisson variate with $P(X = 0) = 0.6$, then the variance of X is:

- Ans
- ☒ 1. $\ln\left(\frac{5}{3}\right)$
 - ☐ 2. $\log_{10} 15$
 - ☐ 3. 0
 - ☐ 4. $\ln 15$

Question ID : 6549781845
Status : Not Answered
Chosen Option : --

Q.58 Study the following production data of a sugar factory.

Year	2001	2002	2003	2004	2005	2006	2007
Production ('000 tonnes)(y)	76	87	95	81	91	96	90

What is the estimate of the production for 2008 using straight-line trend – with the origin at the year 2001 – by the least-squares method ($\sum x = 0, \sum x^2 = 28, \sum xy = 56$)?

- Ans**
- ☒ 1. 86
 - ☒ 2. 88
 - ☒ 3. 96
 - ☒ 4. 98

Question ID : 6549781935

Status : **Answered**

Chosen Option : 4

Q.59 For the random variable X having PDF $f(x) = 4x^3; 0 < x \leq 1$, the interquartile range is:

- Ans**
- ☒ 1. $\left(\frac{3}{4}\right)^{\frac{1}{4}} - \left(\frac{1}{4}\right)^{\frac{1}{4}}$
 - ☒ 2. $\left(\frac{3}{4} - \frac{1}{4}\right)^4$
 - ☒ 3. $\left(\frac{3}{4} - \frac{1}{4}\right)^{\frac{1}{4}}$
 - ☒ 4. $\left(\frac{1}{4}\right)^{\frac{1}{4}} - \left(\frac{3}{4}\right)^{\frac{1}{4}}$

Question ID : 6549781896

Status : **Answered**

Chosen Option : 1

Q.60 If $x_i | f_i, i = 1, 2, \dots, n$ is a frequency distribution with variance 2, mode 24 and arithmetic mean 25, then the mean square deviation from the mode is:

- Ans**
- ☒ 1. 3
 - ☒ 2. 1
 - ☒ 3. 4
 - ☒ 4. 2

Question ID : 6549781861

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

Chosen Option : --

Q.61 If $Mean > Median > Mode$, the distribution is:

- Ans**
- ☒ 1. left-skewed
 - ☒ 2. negative-skewed
 - ☒ 3. normal
 - ☒ 4. right-skewed

Question ID : **6549781866**
Status : **Answered**
Chosen Option : 4

Q.62 For a group of 5 male residents in a society, the mean and standard deviation of their ages are 63 years and 9 years, respectively. For a group of 4 female residents, these values are 54 years and 6 years, respectively. The variance of the combined group of male and female residents is:

- Ans**
- ☒ 1. 3
 - ☒ 2. 81
 - ☒ 3. 27
 - ☒ 4. 9

Question ID : **6549781862**
Status : **Answered**
Chosen Option : 4

Q.63 A sample of 30 latest returns on UTI stock reveals a mean return of \$4 with a sample standard deviation of \$0.13. The estimated standard error of the sample mean is:

- Ans**
- ☒ 1. \$0.55
 - ☒ 2. \$0.02
 - ☒ 3. \$0.34
 - ☒ 4. \$0.22

Question ID : **6549781864**
Status : **Answered**
Chosen Option : 2

Q.64 For the discrete random variable X having probability mass function $(1-p)^{k-1}p; k = 1, 2, 3, \dots; 0 < p \leq 1$, the mode of X is:

- Ans**
- ☒ 1. 1
 - ☒ 2. 0
 - ☒ 3. p
 - ☒ 4. $1-p$

Question ID : **6549781856**
Status : **Not Answered**
Chosen Option : --

Q.65 The data relating to the donation, in hundreds, for welfare in the village of 543 members is follows.

Amount:	20	30	40	50	60	70	80
No. of members:	3	61	132	153	140	51	3

The decile D_6 for this data is:

- Ans**
- ☒ 1. 45
 - ☒ 2. 50
 - ☒ 3. 55
 - ☒ 4. 40

Question ID : 6549781928

Status : **Not Answered**

Chosen Option : --

Q.66 For grouped data, the expression of the median is based on:

- Ans**
- ☒ 1. interpolation method
 - ☒ 2. extrapolation method
 - ☒ 3. trial and error method
 - ☒ 4. iterative method

Question ID : 6549781851

Status : **Not Answered**

Chosen Option : --

Q.67 The following measures were computed for a moderately symmetrical frequency distribution: mean = 50, coefficient of variation = 35% and Karl Pearson's Coefficient of Skewness = - 0.25. The value of the median of the distribution is:

- Ans**
- ☒ 1. $\frac{435}{8}$
 - ☒ 2. $\frac{835}{24}$
 - ☒ 3. $\frac{1235}{24}$
 - ☒ 4. $\frac{835}{16}$

Question ID : 6549781878

Status : **Answered**

Chosen Option : 3

Q.68 A pollution check department intends to determine whether the mean pollutant count per unit volume of water at a lake is within the safety level of 200. A researcher collected ten water samples of unit volume and found the pollutant count to be: 175, 190, 215, 198, 184, 207, 210, 193, 196, 180. You may undertake that the measurements constitute a sample from a normal population. The critical region to test at the $\alpha = .01$ level so that the pollutant count within the safety level is:

- Ans**
- ✓ 1. $T \leq -t_{9,0.01}$
 - ✗ 2. $Z \leq -Z_{0.2}$
 - ✗ 3. $Z \leq -Z_{0.01}$
 - ✗ 4. $T \leq -t_{10,0.01}$

Question ID : **6549781904**
Status : **Not Answered**
Chosen Option : --

Q.69 Factory A and Factory B employ 476 and 524 employees, respectively. The average weekly salary of an employee in Factory A is \$34.5 whereas for an employee in Factory B it is \$28.5. The standard deviation in paying the individual salary has been recorded as \$5 and \$4.5 for Factory A and Factory B, respectively. Which factory has greater variability in paying individual salary?

- Ans**
- ✗ 1. Data insufficient to answer question
 - ✗ 2. Both have the same variability
 - ✗ 3. A
 - ✓ 4. B

Question ID : **6549781863**
Status : **Answered**
Chosen Option : 4

Q.70 Calculate the mode of the following frequency distribution.

Seconds:	51-55	56-60	61-65	66-70
Frequency:	2	7	8	4

- Ans**
- ✓ 1. 61.5
 - ✗ 2. 62.5
 - ✗ 3. 64.5
 - ✗ 4. 63.5

Question ID : **6549781927**
Status : **Answered**
Chosen Option : 1

Q.71 If there are r rows and s columns in a two-way analysis of variance, then the number of degrees of freedom between the rows is:

- Ans
- ☒ 1. $(r-1)$
 - ☐ 2. r
 - ☐ 3. $(s-1)$
 - ☐ 4. s

Question ID : **6549781899**
Status : **Answered**
Chosen Option : 1

Q.72 If a constant 60 is subtracted from each of the values of X and Y , then the regression coefficient is:

- Ans
- ☐ 1. reduced by 60
 - ☐ 2. increased by 60
 - ☐ 3. $\frac{1}{60}$ th of the original regression coefficient
 - ☒ 4. not changed

Question ID : **6549781910**
Status : **Answered**
Chosen Option : 4

Q.73 Given that $P(A) = \frac{1}{5}$, $P(B) = \frac{1}{4}$, $P(A|B) = \frac{1}{4}$, the value of $P(B|A)$ is:

- Ans
- ☐ 1. $\frac{1}{16}$
 - ☐ 2. $\frac{11}{16}$
 - ☐ 3. $\frac{1}{5}$
 - ☒ 4. $\frac{5}{16}$

Question ID : **6549781888**
Status : **Answered**
Chosen Option : 4

Q.74 If random variable X is binomially distributed with parameters $n = 5$, $p = 0.4$, the third factorial moment of X equals:

- Ans
- ☐ 1. 0.384
 - ☒ 2. 3.84
 - ☐ 3. 0.768
 - ☐ 4. 7.68

Question ID : **6549781869**
Status : **Not Answered**
Chosen Option : --

Q.75 If the quartile range is 36, then the quartile deviation is:

- Ans
- ☒ 1. 72
 - ☒ 2. 9
 - ☒ 3. 36
 - ☒ 4. 18

Question ID : 6549781858

Status : Answered

Chosen Option : 4

Q.76 If a random variable X has the PDF $f(x) = \frac{1}{2}; -1 < x < 1$, then the PDF of $Y = X^2$ is:

- Ans
- ☒ 1. $\frac{1}{\sqrt{y}}; -1 \leq y \leq 1$
 - ☒ 2. $\frac{1}{\sqrt{y}}; 0 \leq y \leq 1$
 - ☒ 3. $\frac{1}{2\sqrt{y}}; -1 \leq y \leq 1$
 - ☒ 4. $\frac{1}{2\sqrt{y}}; 0 \leq y \leq 1$

Question ID : 6549781895

Status : Not Answered

Chosen Option : --

Q.77 A random variable X is binomially distributed with parameter $n = 25$ and $p = 0.2$. The skewness of the variable X is:

- Ans
- ☒ 1. 0.40
 - ☒ 2. 0.35
 - ☒ 3. 0.25
 - ☒ 4. 0.30

Question ID : 6549781860

Status : Answered

Chosen Option : 2

Q.78 Let X be a continuous random variable having PDF $f(x) = \frac{1}{8}; -3 < x < 5$. The median of the distribution of X is:

- Ans
- ☒ 1. 1
 - ☒ 2. $\sqrt{\frac{64}{12}}$
 - ☒ 3. 0
 - ☒ 4. $\frac{64}{12}$

Question ID : 6549781865

Status : Answered

Chosen Option : 1

Q.79 The index that indicates the progress or recession of an economic cycle in a group of time series is called:

- Ans
- ☒ 1. value index
 - ☒ 2. qualitative index
 - ☒ 3. quantitative index
 - ☒ 4. diffusion index

Question ID : 6549781917

Status : Answered

Chosen Option : 1

Q.80 Let θ be the angle made by the line of regression of Y on X . If $\sigma_Y = 2\sigma_X$ and the correlation coefficient between X and Y is 0.3, the value θ equals:

- Ans
- ☒ 1. $\tan^{-1} 0.3$
 - ☒ 2. $\cot^{-1} 0.3$
 - ☒ 3. $\tan^{-1} 0.6$
 - ☒ 4. $\cot^{-1} 0.6$

Question ID : 6549781914

Status : Answered

Chosen Option : 3

Q.81 Among the options for parameters, which option is correct for population?

- Ans
- ☒ 1. $\bar{X}$ and μ
 - ☒ 2. s and σ
 - ☒ 3. $\bar{X}$ and s
 - ☒ 4. μ and σ

Question ID : 6549781855

Status : Answered

Chosen Option : 4

Q.82 If, in the ANOVA, the sample means for each of k treatment groups were identical, the value of F statistic equals:

- Ans
- ☒ 1. ∞
 - ☒ 2. 0
 - ☒ 3. 1
 - ☒ 4. between 0 and 1

Question ID : 6549781902

Status : Answered

Chosen Option : 3

Q.83 The variability of the sample treatment means around the overall mean is depicted by the _____ sum of squares.

- Ans
- ☒ 1. treatment
 - ☐ 2. error
 - ☐ 3. interaction
 - ☐ 4. total

Question ID : 6549781897
Status : Answered
Chosen Option : 4

Q.84 If 't' is the true value and 'e' is its measured value of the observation, the relative error is:

- Ans
- ☐ 1. $\frac{t - e}{t}$
 - ☐ 2. $\frac{t}{e}$
 - ☒ 3. $\frac{|t - e|}{t}$
 - ☐ 4. $\frac{t - e}{e}$

Question ID : 6549781882
Status : Answered
Chosen Option : 3

Q.85 For the data on early earning of employees in a company, the raw moments about some arbitrary point $A = 120$ is given by $\mu'_1 = -3.66, \mu'_2 = 940$. The moment μ_2 about actual mean 940 is:

- Ans
- ☐ 1. 916.55
 - ☒ 2. 926.55
 - ☐ 3. 906.55
 - ☐ 4. 936.55

Question ID : 6549781868
Status : Answered
Chosen Option : 2

Q.86 For the joint density $f_{XY}(x, y) = x^2 + Cy; 0 \leq x \leq 1, 0 \leq y \leq 1$, the value of constant C is:

- Ans
- ☒ 1. $\frac{4}{3}$
 - ☐ 2. $\frac{1}{3}$
 - ☐ 3. 1
 - ☐ 4. $\frac{2}{3}$

Question ID : 6549781839
Status : Not Answered
Chosen Option : --

Q.87 We have sampled 64 units from the latest production lot to depict the weight of the product, and the sample mean is 10.40 lbs. If the population standard deviation is known to be 0.40 lbs, then the 95% confidence interval is:

- Ans**
- ☒ 1. 10.4 ± 0.392
 - ☒ 2. 10.4 ± 0.098
 - ☒ 3. 10.4 ± 0.196
 - ☒ 4. 10.4 ± 0.049

Question ID : **6549781919**
Status : **Answered**
Chosen Option : 2

Q.88 The number of 'likes' on the last four photos posted on Facebook is 3, 15, 21, and 13. The mean absolute deviation value about the mean of 'likes' is:

- Ans**
- ☒ 1. 7
 - ☒ 2. 6
 - ☒ 3. 5
 - ☒ 4. 4

Question ID : **6549781885**
Status : **Answered**
Chosen Option : 3

Q.89 In a cluster sampling wherein the units within same cluster are highly correlated, suppose S_w^2 represents the variance within the clusters and S_b^2 between clusters, then which option is correct?

- Ans**
- ☒ 1. S_w^2 is greater than and equal to S_b^2
 - ☒ 2. S_w^2 is equal to S_b^2
 - ☒ 3. S_w^2 is lesser than and equal to S_b^2
 - ☒ 4. S_w^2 and S_b^2 are not comparable

Question ID : **6549781854**
Status : **Answered**
Chosen Option : 3

Q.90 A clinical researcher wants to estimate the mean iron level of all females in the age group of 20 to 29. How many minimum subjects are needed to estimate the mean iron level within 2 points with 99% confidence, assuming $s = 19.1$ based on earlier studies?

- Ans**
- ☒ 1. 609
 - ☒ 2. 610
 - ☒ 3. 608
 - ☒ 4. 607

Question ID : **6549781909**
Status : **Not Answered**
Chosen Option : --

Q.91 When the k population means are truly distinct from each other, it is expected that:

Ans  1.

The average error deviation differ significantly between at least two of the populations

 2.

the average treatment deviation is relatively small related to the average error deviation

 3.

the average treatment deviation is relatively large related to the average error deviation

 4.

the average treatment deviation is about equal to the average error deviation

Question ID : 6549781898

Status : **Not Answered**

Chosen Option : --

Q.92 For the distribution $f(x) = \frac{(x-3)^2}{5}$; $x = 3, 4, 5$, the value of the third moment about origin is:

Ans  1. 125.80

 2. 120.80

 3. 112.80

 4. 124.80

Question ID : 6549781867

Status : **Not Answered**

Chosen Option : --

Q.93 A fair six-sided die is rolled, with X being the number on the uppermost face. The variance of X is:

Ans  1. $\frac{35}{12}$

 2. $\frac{25}{12}$

 3. $\frac{25}{6}$

 4. $\frac{35}{6}$

Question ID : 6549781840

Status : **Not Answered**

Chosen Option : --

Q.94 The data relating to the marks, out of 100, of 8 students in an examination is given as follows.

25, 48, 32, 52, 21, 64, 29, 57

The values of Q_1 and Q_3 , respectively, for this data are:

- Ans**
- ☒ 1. (26.25, 55.75)
 - ☒ 2. (25.75, 54.50)
 - ☒ 3. (26.00, 55.75)
 - ☒ 4. (25.50, 55.50)

Question ID : 6549781929

Status : **Not Answered**

Chosen Option : --

Q.95 The multiple correlation coefficient $R_{1.23}$ as compared to any simple correlation coefficients between the distinct variable X_1, X_2 , and X_3 is:

- Ans**
- ☒ 1. always equal to the product of r_{12}, r_{13} and r_{23}
 - ☒ 2. less than any r_{12}, r_{23}, r_{13}
 - ☒ 3. not less than any r_{12}, r_{13} and r_{23}
 - ☒ 4. always equal to the sum of r_{12}, r_{13} and r_{23}

Question ID : 6549781916

Status : **Answered**

Chosen Option : 4

Q.96 In some of the real-life situations, a researcher has to explore two or more treatments at the same time. This type of experimental design is referred to as:

- Ans**
- ☒ 1. contingency table design
 - ☒ 2. completely randomised design
 - ☒ 3. randomised block design
 - ☒ 4. factorial design

Question ID : 6549781906

Status : **Answered**

Chosen Option : 1

Q.97 Fisher's index number formula satisfies which of the following?

- (I) Unit test
- (II) Factor reversal test
- (III) Time reversal test

- Ans
- ☒ 1. Only I and III
 - ☒ 2. Only I and II
 - ☒ 3. All I, II and III
 - ☒ 4. Only I

Question ID : 6549781921
Status : Answered
Chosen Option : 3

Q.98 For any two independent events A and B , $P(A - B)$ is equal to:

- Ans
- ☒ 1. $P(A) - P(A)P(B)$
 - ☒ 2. $P(B) - P(A)$
 - ☒ 3. $P(B)(1 - P(AB))$
 - ☒ 4. $P(A) - P(B)$

Question ID : 6549781889
Status : Answered
Chosen Option : 4

Q.99 Given the regression lines $X + 2Y - 5 = 0$, $2X + 3Y - 8 = 0$ and $Var(X) = 12$, the value of $Var(Y)$ is:

- Ans
- ☒ 1. $\frac{3}{4}$
 - ☒ 2. $\frac{4}{3}$
 - ☒ 3. 16
 - ☒ 4. 4

Question ID : 6549781913
Status : Answered
Chosen Option : 4

Q.100 Let X be the discrete random variable with PMF $(x) = \frac{1}{2^x}; x = 1, 2, 3, \dots$. The value of $P(X > 4)$ is:

Ans

 1. $\frac{15}{16}$

 2. $\frac{9}{16}$

 3. $\frac{5}{16}$

 4. $\frac{1}{16}$

Question ID : **6549781843**

Status : **Answered**

Chosen Option : **4**