

R

Statistics (Objective Type)

Time: 20 Minutes

RWP-22

Marks: 17

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A, B, C & D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with marker or pen ink on the answer sheet provided.

- 1.1. If $Y = 2 + 0.6X$, then value of \hat{Y} for $X = 0$ is : www.FGSTUDY.com
 - (A) 2 www.FGSTUDY.com
 - (B) 0.6
 - (C) 0.8
 - (D) 2.6 www.FGSTUDY.com
2. If $b_{xy} = -0.52$ and $b_{yx} = -1.02$ then r_{xy} is :
 - (A) 1
 - (B) 0.73
 - (C) 0.80
 - (D) -0.73
3. Dependent variable is also called :
 - (A) Regressand
 - (B) Regressor
 - (C) Explanatory variable
 - (D) Predictor
4. For 3×4 contingency table, the degree of freedom will be :
 - (A) 12
 - (B) 6
 - (C) 3 FGSTUDY.com
 - (D) 9
5. A characteristic which varies in quality is called :
 - (A) Quantitative variable FGSTUDY.com
 - (B) Qualitative variable
 - (C) Attribute
 - (D) Both A & B FGSTUDY.com
6. A business cycle has phases :
 - (A) 2
 - (B) 3
 - (C) 5
 - (D) 4
7. The graph of time series is called :
 - (A) Histogram
 - (B) Histogram
 - (C) Pie-chart
 - (D) Ogive
8. CPU stands for :
 - (A) Central plain unit
 - (B) Central programming unit FGSTUDY.com
 - (C) Central processing unit
 - (D) None of these FGSTUDY.com
9. In a normal distribution, X lies between :
 - (A) $-\infty$ and 0
 - (B) $-\infty$ and ∞
 - (C) 0 and ∞
 - (D) 0 and 2 FGSTUDY.com
10. In normal distribution the value of β_1 and β_2 are :
 - (A) 0 and 3
 - (B) 3 and 0
 - (C) 0 and 1
 - (D) 1 and 0 FGSTUDY.com
11. In normal distribution the value of Quartile Deviation is :
 - (A) $\frac{2}{3}\sigma$
 - (B) 0.6745σ
 - (C) Both A & B
 - (D) 0.7979σ
12. If sampling is done with replacement, number of possible sample is :
 - (A) ${}^N C_n$ FGSTUDY.com
 - (B) $N \times n$
 - (C) $N + N$
 - (D) N^n FGSTUDY.com
13. Probability distribution of a sample statistic is called :
 - (A) Time
 - (B) Frequency distribution
 - (C) Sampling distribution
 - (D) None of these
14. Procedure of selecting a sample from population is called :
 - (A) Sample
 - (B) Sampling design
 - (C) Sampling
 - (D) None of these
15. 90% confidence interval for the mean is 53.22 and 64.78, then sample Mean is :
 - (A) 59
 - (B) 49
 - (C) 69
 - (D) 118
16. If $n = 8$, $\sum X = 120$, $\sum (X - \bar{X})^2 = 302$. Then unbiased estimated value of the population mean is :
 - (A) 15 FGSTUDY.com
 - (B) 120
 - (C) 8
 - (D) 302 FGSTUDY.com
17. Power of test is denoted by :
 - (A) $1 - \alpha$
 - (B) β
 - (C) α
 - (D) $1 - \beta$

Statistics (Essay Type)

Time: 2:40 Hours

Section - I **RWP-22**

Marks: 68

2 x 8 = 16

2- Write short answers of any eight parts from the following.

- i. Quartile deviation of a normal distribution is 3.3725. Find the approximate value of S.D and M.D.
- ii. In a normal distribution $\mu_4 = 243$. Find μ_2 and μ_3 .
- iii. What is standard normal variable?
- iv. What is interval estimation?
- v. Define type II error with example.
- vi. What is a compiler?

- vii. In a normal distribution $\mu = 9$ and $Q_3 = 171$. Find S.D (σ)

What is the role of standard deviation σ in the normal curve.

- viii. Write any two properties of best estimator.
- ix. If $t = 2.3$, $n = 10$, $\mu = 5$, $S = 3$, find \bar{X}
- x. Define one tailed and two tailed tests.
- xi. Differentiate between hard and soft copy.

2 x 8 = 16

3- Write short answers of any eight parts from the following.

- i. Distinguish between population and sample.
- ii. Given $n = 25$ and $\sigma_{\bar{Y}} = 5$ find the value of σ^2
- iii. Define the standard error.
- iv. Define dependent variable in regression model.
- v. What is meant by Y-intercept "a"?
- vi. Explain the meaning of regression coefficient.

- vii. Explain the term: sampling frame.
- viii. Given $\mu = 6$, $n = 2$ and $\sigma^2 = 10.8$ find $E(S^2)$.
- ix. Draw all possible samples of size 3 without replacement from the population 0, 1, 2, 3, 4.

If $a = 130$ and $b = 3.9$ write regression equation of Y on X.

- x. Given $Y = 6, 8, 10$ and $X = 0, 1, 2$. Find "b"
- xi. The regression equation of X on Y is $\hat{X} = 5y - 7$ and regression equation of Y on X is $\hat{Y} = 0.1X + 1.7$. Find correlation coefficient.

2 x 6 = 12

4- Write short answers of any six parts from the following.

- i. Define attributes.
- ii. Given $(A) = 200$, $(B) = 800$, $N = 1000$. Find (AB) assuming A and B are independent.
- iii. Name the four methods used to measure the secular trend.
- iv. Give two examples of irregular variation.
- v. What is meant by residual?

- vi. Define positive association.
- vii. Define the term dichotomy.
- viii. Given $Y = 16, 18, 20, 22, 24$ and $X = -2, -1, 0, 1, 2$, and $\hat{Y} = 20 + 2x$, find $\sum \hat{Y}$.
- ix. What is semi-averages method?

Section - II

8 x 3 = 24

NOTE: Answer any three questions from the following.

5.(a) In a normal distribution $Q_1 = 20$ and $Q_3 = 30$ find its Mean and Mean deviation.

(b) Let $X \sim N(30, 25)$. Find (i) $P(X > 35)$ (ii) $P(X < 22)$ 04+04

6.(a) Take all possible samples of size 2 with replacement from the population 2, 3, 4, 5.
(i) Calculate means of the samples.
(ii) Construct sampling distribution of means.
(iii) Prove that $\mu_{\bar{Y}} = \mu$.

(b) Find unbiased estimates of μ and σ from the sample of values 13, 18, 26, 34, 45 and 48. 04+04

7.(a) A normal population has a variance of 100. A random sample of size 16 selected from the population has a mean of 52.5. Construct the 90% confidence interval estimate of population mean, μ . Interpret the result.

(b) The sex distribution of 98 births reported in a newspaper was 52 boys and 46 girls. Is this consistent with an equal sex division in the population? Use 5% level of significance. 04+04

8.(a) For 9 observations on supply (X) and price (Y) the following data was obtained
 $\sum(x-90) = -25$, $\sum(x-90)^2 = 301$, $\sum(y-127) = 12$, $\sum(y-127)^2 = 1006$, $\sum(x-90)(y-127) = -469$
Obtain the estimated line of regression of X on Y and estimate the supply when the price is Rs. 125.

(b) Compute the correlation co-efficient between the variables X and Y represented in the following table.

x	2	4	5	6	8	11
y	18	12	10	8	7	5

9.(a) Given the following data
 $(AB) = 110$, $(\alpha B) = 90$,
 $(\alpha\beta) = 290$, $(\alpha\beta) = 510$. Discuss association

(b) Obtain the semi-averages trend line and find the trend values from the following data. 04+04

Years	Y
1973	201
1974	238
1975	392
1976	507
1977	484
1978	649
1979	742



Roll No. _____ to be filled in by the candidate.

(For all sessions)

Paper Code

8

6

4

3

Statistics (Commerce Group) (Objective Type)

Time: 15 Minutes

www.FGSTUDY.com

Marks: 10

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. When a pair of dice is rolled the sample space consists of sample points:

- (A) 6 (B) 12 (C) 24 (D) 36

2. When two coins are tossed simultaneously, the probability of one head is:

- (A) $\frac{1}{4}$ (B) $\frac{1}{8}$ (C) $\frac{1}{2}$ (D) $\frac{1}{5}$

3. Data classified by attributes is called:

- (A) Qualitative (B) Quantitative (C) Discrete (D) Continuous

4. The grouped data is also called:

- (A) Raw data (B) Primary data (C) Secondary data (D) Qualitative data

5. Systematic arrangement of data in rows and columns is called:

- (A) Classification (B) Tabulation (C) Stub (D) Box head

6. Frequency is denoted by:

- (A) C (B) f (C) q (D) r

7. Mean of symmetrical distribution is 90, value of its median will be:

- (A) 80 (B) 85 (C) 90 (D) 75

8. Arithmetic mean of two numbers a and b is:

- (A) $\frac{ab}{2}$ (B) $\frac{2a}{b}$ (C) $\frac{a+b}{2}$ (D) $\frac{2}{a+b}$

9. Link relatives can be obtained dividing P_n by:

- (A) q_{n-1} (B) P_o (C) q_o (D) P_{n-1}

10. An index number is called simple index if computed for:

- (A) Single variable (B) Two variables (C) Multiple variables (D) None of these

Roll No. _____ to be filled in by the candidate.

(For all sessions)

Statistics(Commerce Group) (Essay type)¹

FGSTUDY.com

FGSTUDY.com

Time: 1:45 Hours

Marks: 40

2x12=24

2 x 6 =12

SECTION-I**2- Write short answers of any six parts from the following.**

- Define inferential statistics.
- Define qualitative variable.
- Differentiate between statistic and parameter.
- What is the average?
- Define mode.
- Write two properties of A.M.
- If median=40 and mode=50. Find mean.
- Find median of 10,4,8,13.
- Write two demerits of median.

3- Write short answers of any six parts from the following.

- Define Simple bar chart.
- What is classification?
- What is an array?
- Define Price index number.
- What is Laspeyre's index number?
- Define Probability.
- Define a sure event. Give one example.
- What is Sample space?
- If Laspeyre's index number is 101.69 and Fisher's index number is 90.80, then find Paasche's index number.

SECTION-II

8x2=16

4

Note: Attempt any two questions from the following.**4. (a)** Make a discrete frequency distribution from the observations, taking one as size of class interval.

5	9	2	0	1	3	5	7	8	6
4	3	1	3	2	3	4	3	2	5
6	4	5	5	3	2	3	5	10	5

(b) Draw histogram from the following data.

Ages	10-19	20-29	30-39	40-49	50-59
frequency	5	25	40	20	10

5. (a) Calculate the Arithmetic Mean of the following frequency distribution.

X	12	14	16	18	20	22
f	01	04	06	10	07	02

(b) Compute median for the following data.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	3	9	15	30	18	5

6. (a) Find the price index with 1981 as base using simple average of relative method.

Year	Price		
	A	B	C
1981	18	85	52
1982	22	76	60
1983	28	80	56

(b) A coin is tossed thrice. Find the probability

- No head.
- Two heads

Roll No. _____ to be filled in by the candidate

(For all sessions)

Paper Code

8

1

8

7

Statistics (Objective Type)

FGSTUDY.com

FGSTUDY.com

Time: 20 Minutes**Marks: 17**

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

www.FGSTUDY.com

www.FGSTUDY.com

FGSTUDY.com

FGSTUDY.com

FGSTUDY.com

FGSTUDY.com

www.FGSTUDY.com

www.FGSTUDY.com

- The smallest individuals that constitute the whole population is called:
 - Sampling frame
 - Sampling units
 - Sampled population
 - Target population
- Confidence coefficient is denoted by:
 - α
 - β
 - $1-\beta$
 - $1-\alpha$
- $E(\hat{\theta}) - \theta =$
 - Sampling error
 - Non Sampling error
 - Bias
 - Standard Error
- A Sample size "n" is called large when:
 - $n > 30$
 - $n = 30$
 - $n \geq 30$
 - $n \leq 30$
- A test statistic $Z = \frac{\bar{x} - 4}{\sigma / \sqrt{n}}$ has degrees of freedom:
 - n
 - n-1
 - n-2
 - none
- In regression, if $b_{xy} = -1$ and $b_{yx} = -1$ then r_{xy} is equal to:
 - 1
 - 0
 - +1
 - 0.5
- In regression $\sum (y - \hat{y})$ is equal to:
 - zero
 - 1
 - +1
 - 2
- If both correlated variables move in same direction, then correlation will be:
 - zero
 - Negative
 - Positive
 - None
- The strength of relationship between two attributes is called:
 - Correlation
 - Regression
 - Interdependence
 - Association
- Presence of attributes is denoted by:
 - Greek letters
 - Capital letters
 - Small letters
 - Latin letters
- If numerical data is arranged in the order of occurrence, then resulting data is called:
 - Arithmetic series
 - Geometric series
 - Time series
 - Random series
- Recession in business is:
 - Cyclical movements
 - Irregular variations
 - Secular trend
 - Seasonal variations
- If $X \sim N(40, 25)$, then mode of the distribution is:
 - 15
 - 25
 - 40
 - 5
- Range of the normal distribution is:
 - 0 to ∞
 - $-\infty$ to 0
 - 0 to n
 - $-\infty$ to $+\infty$
- In normal distribution, all odd order moments are equal to:
 - 1
 - 2
 - zero
 - 3
- No. of observations falling in a sample is called:
 - population size
 - Sampling frame
 - Sample size
 - Sample design
- If $\sum X = 18$ and $N=3$, then mean of sampling distribution of means $\mu_{\bar{X}}$ is:
 - 6
 - 9
 - 3
 - 54

Statistics (Essay type)

Time: 2:40 Hours

Marks: 68

2 x 22 = 44

2 x 8 = 16

SECTION-I

2- Write short answers of any eight parts from the following.

- What is normal probability density function?
- Write two properties of standard normal distribution.
- Define standard normal variation.
- In a normal distribution, $Q_1=15, Q_3=25$. Find μ and σ .
- What is the range of a normal distribution?
- Define interval estimation.
- What is biased estimator?
- Define estimate.
- What is null hypothesis?
- Define Test Statistics.
- Define Type-I error with an example.
- Write down the theoretical equation of normal distribution for $\mu = 16$ and $\sigma^2 = 64$.

3- Write short answers of any eight parts from the following.

- What is population?
- What is random sampling?
- What is Statistics?
- Write the properties of sampling distribution of a sample mean.
- If $n=25$ and $\sigma = 2.7$ then find $\sigma_{\bar{x}}$.
- Define simple random sampling.
- Define simple regression.
- Given $\bar{x} = 1, \bar{y} = 8$ and $b_{xy} = 2$. Find the value of a_{yx} .
- Explain the term residual.
- Given $S_{xy} = 36, S_x = 8, S_y = 9$, find r .
- What is co-variance?
- Give any two properties of correlation coefficient.

4- Write short answers of any six parts from the following.

- Define association of attributes.
- If $A=20, B=10, N=40$, find (AB) .
- Define rank correlation.
- Differentiate between positive and negative association.
- Define multiplicative model in time series.
- Define moving averages method.
- What is irregular variation in time series?
- Define analysis of time series.
- Given $\sum X = 0, \sum Y = 245, \sum X^2 = 28, \sum XY = 66$ and $n=7$, fit a linear trend.

SECTION-II

Note: Attempt any three questions from the following.

- (a) Given a normal distribution with $\mu = 40$ and $\sigma = 6$, Find: (i) The area below 32. (ii) The area above 27.
(b) A random variable X is normally distributed with mean=40 and standard deviation=4. Find (i) P_{20} . (ii) P_{95}
- (a) Take all possible samples of size 2 with replacement from the population 1,3,5,7. Show that:

$$(i) \mu_{\bar{x}} = \mu, \quad (ii) \sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

- A family has 5 children with 3 boys and 2 girls as given below.

Child	I	II	III	IV	V
Sex	B	G	G	B	B

Select all possible sample of size 3 children without replacement. Form sampling distribution of proportion of boys.

Verify: (i) $\mu_p = \pi$ (ii) $\text{Var}(p) = \frac{\pi(1-\pi)}{n} \cdot \frac{N-n}{N-1}$

- (a) Compute 95% confidence interval for μ if $n=50, \sum X = 2163$ and $\sum X^2 = 144949$.

- A random sample of 10 from a population gave $\bar{X} = 20$ and $\sum (X - \bar{X})^2 = 144$.

Test $H_0: \mu = 19.5$ against $H_1: \mu > 19.5$ at $\alpha = 0.05$.

- Fit a least squares line to following data taking "Y" as dependent variable.

X	1	3	4	6	8	9	11	14
Y	1	2	4	4	5	7	8	9

- For a set of 50 pairs of observations, The standard deviation of X and y are 4.5 and 3.5 respectively. If the sum of products of deviations of 'X' and 'Y' values from their respective means be 420. Find the Karl Pearson's co-efficient of Correlation.

- Calculate coefficient of association from the following data.

	Attacked	Not Attacked
Given quinine	20	780
Without quinine	220	2180

- Fit a straight line to the following data.

Years	1987	1988	1989	1990	1991
Values	10	17	28	43	62