(PAGES: 3)

D3BBH2305 **Reg. No.....**

Name: .....

THIRD SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2024
(Regular/Improvement/Supplementary)
BBA HONOURS
GBAH3B14T: BUSINESS STATISTICS

Time: 3 Hours **Maximum Marks: 80**

Part A: Answer all the questions. Each carries *one* mark.
Choose the Correct Answer.

1. Increased sales in a market due to a festival is related with _____.
   a) Trend values. b) Cyclic variation.
   c) Seasonal indices. d) Irregular variation.
2. In chronological classification, data are classified according to _____.
   a) Time. b) Location.
   c) Attributes. d) None of these.
3. In a correlation analysis, if r = +0.48, then we say that, there is ____ between variables.
   a) No correlation. b) Positive correlation.
   c) Negative correlation. d) Perfect positive correlation.
4. An estimator is said to be _____ if it covers as much information as possible about the parameter which is contained in the sample.
   (a) Unbiased b) Consistent
   (c) Efficient d) Sufficient
5. Probability of rejecting the null hypothesis when it is actually true is called _____.
   a) significance level. b) power.
   c) Type I error. d) Type II error.

Fill in the Blanks.

6. The technique of analysis of variance is developed by _____.
7. Bar diagrams are _____ dimensional diagrams.
8. The mean of the values 11, 12, 14, 15 and 18 is _____.
9. If the correlation is perfect positive, the value of correlation coefficient is_____.
10. A _____ estimate is a single number which is used as an estimate of the unknown population parameter.

(10 x 1 = 10 Marks)

(PTO)

Part B: Answer any *eight* questions. Each carries *two* marks.

11. Explain the limitations of statistics.
12. What is histogram? How will you construct it for distribution having unequal class intervals?
13. Give the formula for finding the confidence interval for the mean of a Normal population when population standard deviation is known.
14. What are the assumptions made for ANOVA?
15. Distinguish between additive and multiplicative model of a time series analysis.
16. Give the formula for finding the confidence interval for the proportion of success of a binomial population.
17. Define power of a test.
18. What are seasonal variations of time series?
19. Mention the uses of time series.
20. State the properties of a good estimator.

(8 x 2 = 16 Marks)

Part C: Answer any *six* questions. Each carries *four* marks.

21. What is a frequency curve? How will you construct it?
22. Draw a frequency curve for the following data:

Class	0 – 10	10– 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	6	12	22	18	10	4

23. Define the following:
    (i) Interval estimation. (ii) Standard error.
    (iii) Parameter. (iv) Efficiency.
24. What is a point estimator? Explain the properties of a good estimator.
25. A manufacturer of quartz watches claims that 2% of his product is defective. A retailer buys a batch of 720 watches from the manufacturer and finds that 26 watches are defective. Test whether the manufacturer's claim is justified.
26. The following table gives the classification of 100 workers according to sex and the nature of work. Test whether nature of work is independent of the sex of the worker.

	Skilled	Unskilled
Male	40	20
Female	10	30

27. Fit a trend line by the method of semi averages to the data given below.

Year:	2008	2009	2010	2011	2012	2013	2014
Production (Kg):	102	105	114	110	108	116	112

28. From the following data, calculate trend by 4 - yearly moving averages and determine the trend values.

Year:	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Value:	50.0	36.5	43.0	44.5	38.9	38.1	32.6	41.7	41.7	33.8

(6 x 4 = 24 Marks)

Part D: Answer any *two* questions. Each carries *fifteen* marks.

29. Define central tendency. Calculate mean, median and mode from the following data.

Value	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Frequency	1	3	8	10	15	3

30. From the data given below, find:

(i) The two regression equations.

(ii) The coefficient of correlation between marks in Economics and Statistics.

(iii) The most likely marks in Statistics when the marks in Economics are 30.

Marks in Economics	25	28	35	32	31	36	29	38	34	32
Marks in Statistics	43	46	49	41	36	32	31	30	33	39

31. For the following time series, obtain the linear trend. Also estimate the value for 1994.

Year:	1980	1982	1984	1986	1988	1990	1992
Value:	4	6	10	18	32	51	70

(2 x 15 = 30 Marks)