21UIB307

FOR THE CANDIDATES ADMITTED
DURING THE ACADEMIC YEAR 2021 ONLY) **REG.NO**

NGM COLLEGE (AUTONOMOUS) POLLACHI

END-OF-SEMESTER EXAMINATIONS: DECEMBER-2022

B.Com-International Business **MAXIMUM MARKS: 70**

III SEMESTER **TIME: 3 HOURS**

PART III

BUSINESS STATISTICS

SECTION – A (10 X1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS
MULTIPLE CHOICE QUESTIONS (K1)

1. The ratio of the sum of observations and the total number of observations is called:_____
   a. Mean b. Median c. Mode d. Central tendency

2. Cumulative frequency distribution for graph is called as _____
   a. Frequency Polygon b. Pie diagram c. Ogive d. Frequency Curve

3. Which of the following is not a measure of central tendency?
   a. Standard deviation b. Mean c. Median d. Mode

4. If the values of two variables move in the same direction, _____
   a. The correlation is said to be non-linear b. The correlation is said to be linear
   c. The correlation is said to be negative d. The correlation is said to be positive

5. An orderly set of data arranged with their time of occurrence is called as_____
   a. Arithmetic series b. Geometric series
   c. Harmonic series d. Time series

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES (K2)

6. Discuss the limitations of statistics.
7. Illustrate the components of a good table.
8. In a frequency distribution, if a = assumed mean = 55,∑fi = 100, h = 10 and $\sum f_i\mu_i$ = -30, then find the mean of the distribution
9. Find Karl Pearson's correlation coefficient if N = 50, X=75, ∑Y=80, ∑X2=130, ∑Y2=140 and ∑XY=128.
10. How do you measure trends?

SECTION – B (5 X 4 = 20 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Assess the methods of collecting data.

(OR) **(CONTD…..2)**

b) Examine the functions of statistics.

12. a) List out the difference between classification and tabulation.

(OR)

b) Illustrate the need for diagrammatic and graphical representation of data.

13. a) The following distribution gives the pattern of overtime work done by 100 employees of a company. Calculate the average overtime work done per employee.

Overtime hours	:	10-15	15-20	20-25	25-30	30-35	35-40
No of employees	:	11	20	35	20	8	6

(OR)

b) Find the average deviation from mean for the following distribution.

Quantity demanded (in units)	Frequency
60	2
61	0
62	15
63	29
64	25
65	12
66	10
67	4
68	3

14. a) The ranks of 15 students in two subjects A and B are given below. The two numbers in brackets denote the ranks of a student in A and B subjects respectively. (1,10), (2,7), (3,2), (4,6), (5,4), (6,8), (7,3), (8,1), (9,11), (10,15), (11,9), (12,5), (13,14), (14,12), (15,13). Calculate Spearman's rank correlation coefficient.

(OR)

b) Use least squares regression lines to estimate the increase in sales revenue expected from increase of 7.5 percent in advertising expenditure.

Firm	Annual % increase in sales revenue	Annual % increase in advertising expenditure
A	1	1
B	3	2
C	4	2
D	6	4
E	8	6
F	9	8
G	11	8
H	14	9

15. a) Fit a trend line by the method of semi averages for the given data.

Year	Production
2010	105
2011	115
2012	120
2013	100
2014	110
2015	125
2016	135

(OR)

b) Discuss the components of Time Series.

SECTION – C (4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS.
(16TH QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS FROM Q.NO: 17 TO 21) (K4) OR (K5)

16. Evaluate the methods of collecting primary data.

17. Enumerate the characteristics of good classification.

18. The table is the frequency distribution of ages to the nearest birthday for a random sample of 50 employees in a large company.

Age to nearest birthday :	20-29	30-39	40-49	50-59	60-69
Number of employees :	5	12	13	8	12

Compute the mean, median and mode for these data.

19. Ten competitors in a beauty contest are ranked by three judges in the following order:

Judge 1:	1	6	5	10	3	2	4	9	7	8
Judge 2:	3	5	8	4	7	10	2	1	6	9
Judge 3:	6	4	9	8	1	2	3	10	5	7

Use the rank correlation coefficient to determine which pair of judges has the nearest approach to common tastes in beauty.

20. The following data relate to the scores obtained by 9 salesman of a company for an intelligence test and their weekly sales (in Rs.1000's)

Salesman	A	B	C	D	E	F	G	H	I
Test scores	50	60	50	60	80	50	80	40	70
Weekly sales	30	60	40	50	60	30	70	50	60

a) Obtain the regression equation of sales on intelligence test scores of the salesman.
b) If the intelligence test score of a salesman is 65, what would be his expected weekly sales.

21. Using three yearly moving averages, determine the trend and short term error.

Year	Production (in tonnes)
1987	21
1988	22
1989	23
1990	25
1991	24
1992	22
1993	25
1994	26
1995	27
1996	26