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

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI
END-OF-SEMESTER EXAMINATIONS : MAY 2023

B.Com.-BPS   **MAXIMUM MARKS: 70**
SEMESTER IV   **TIME: 3 HOURS**

PART - III
STATISTICS METHODS

SECTION - A   **(10 X 1 = 10 MARKS)**

ANSWER THE FOLLOWING QUESTIONS.
MULTIPLE CHOICE QUESTIONS.   **(K1)**

1. Statistics refers to a _____
    a) Part of Mathematics   b) Subject   c) Numerical method   d) Science
2. Measures of skewness tell us the _____
    a) Magnitude   b) Direction   c) Speed   d) All of these
3. The purpose of regression is to study _____
    a) Dependence between x and y   b) Cause and effect relationship
    c) Functional relationship between two or more variables   d) All of these

4. In Laspayre's index number, importance is given to the quantity of
    a) Current year   b) Base year   c) Future year   d) None of the above
5. The value of the variable tends to increase or decrease over a long period of time is
    a) Secular trend   b) Cyclical fluctuation
    c) Seasonal variation d) Irregular variation

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES   **(K2)**
6. Define Mode..
7. Define Standard deviation.
8. What is correlation?
9. Construct the formula for Cost of Living Index Number by using aggregate expenditure method.
10. What is Time Series?

SECTION – B   **(5 X 4 = 20 MARKS)**
ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.   **(K3)**
11a) Enumerate the importance of statistics.   **(OR)**
    b) Draw a multiple bar diagram from the following data (in lakhs).

Year	Sales	Gross profit	Net profit
2013	120	40	20
2014	135	65	40
2015	140	75	55
2016	150	80	60
2017	175	90	70

12a).Calculate range and co-efficient of range

       30   20   17   36   34   21

(OR)

b). Calculate co efficient of skewness for the following data

     24   14   22   39   26   24   22   24   19

13a). Calculate Karl Pearson Co-efficient of correlation.

X	10	20	34	18	40
Y	15	18	32	17	38

(OR)

b). Find regression lines:

x	3	5	6	8	9	11
y	2	3	4	6	5	8

14a). From the following data construct on index for 2018 taking 2017 as base.

Commodity	2017 price (Rs.)	2018 price (Rs.)
A	100	140
B	80	120
C	160	180
D	220	240
E	40	40

.   **(OR)**

b). Calculate Index number of using

    a) Laspeyre's Method   b) Paasche's Method   c) Fisher's Method

Commodity	2000		2005	
	Price	Quantity	Price	Quantity
A	10	10	12	12
B	12	12	14	14
C	14	14	16	16
D	16	16	18	18
E	18	18	20	20

15a). Find the 3 year moving average from the following time series data

Year	1967	1968	1969	1970	1971	1972	1973	1974
Sales (in tones)	4	7	10	16	20	25	32	40

(OR)

b). Assuming that trend is absent, determine if there is any seasonability in the data given below:

Year	I Quarter	II Quarter	III Quarter	IV Quarter
2000	3.8	3.7	5.8	4.3
2001	4.2	4.8	4.3	3.7
2002	5.0	5.5	2.3	7.4
2003	7.2	6.3	4.2	8.8

What are the seasonal indices for various quarters?

SECTION - C (4 X 10 = 40 MARKS)
ANSWER ANY FOUR OUT OF SIX QUESTIONS
(16th QUESTION IS COMPULSORY AND ANSWER ANY THREE (K4 (Or) K5)

16. Calculate mean, median and mode from the following data.

X	10	20	30	40	50	60	70	80
F	3	15	20	6	10	8	7	11

17. Represent the following data by a pie diagram.

Items	Expenditure (Rs. In lakhs)
Food	87
Cloth	49
Education	33
Others	11

18. Calculate Q.D and its co-efficient from the following data.

Marks	10	20	30	40	50	60	70
No. of students	8	12	6	18	10	7	3

19. Find out rank correlation

x	21	36	42	37	25
y	47	40	37	42	43

20. Construct Price Index number by using the following.
    a. Laspeyre's Method   b. Paasche's Method   c. Fisher's Method

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	4	80	12	100
B	8	100	16	80
C	12	40	18	60
D	16	20	12	40
E	20	20	10	40

21. Fit a straight line trend under the method of least squares and also find the sales for 2016.

Year	1989	1990	1991	1992	1993	1994	1995
Sales (in 1000)	80	90	92	83	94	99	92

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