PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BBA DEGREE EXAMINATION MAY 2024
(First Semester)

Branch – **BUSINESS ADMINISTRATION/ BUSINESS ADMINISTRATION (INFORMATION SYSTEMS)/ BUSINESS ADMINISTRATION (RETAIL MANAGEMENT)**

BUSINESS MATHEMATICS & STATISTICS

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1. What is the 8th term of the G.P. 3, 6, 12, 24… ?
   (i) 184 (ii)284 (iii) 384 (iv) 484

2. Mode of the data 7.5,7.3,7.2,7.2,7.4,7.7,7.7,7.5,7.3,7.2,7.6,7.2 is
   (i) 7.3 (ii)7.5 (iii) 7.2 (iv) 7.6

3. Which of the following statements is true for correlation analysis?
   (i) It is a bivariate analysis (ii) It is a multivariate analysis
   (iii) It is a univariate analysis (iv) Both a and c

4. The following are the movement(s) in the secular trend
   (i) Smooth (ii) Regular
   (iii) Steady (iv) All of the above

5. Index number is a type of _____
   (i) Dispersion (ii) Correlation
   (iii) Average (iv) None of the above

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6. a) A Certain sum amounts to Rs.4000 at the end of 5 years at 12% per annum interest.Find the sum.

(OR)

b) Find the compound interest on Rs.20,000 for 5 years at 20% per annum.What will be the simple interest in the above case?

7. a) Find the arithmetic mean from the following table:

Marks:	52	58	60	65	68	70	75
No.of Students:	7	5	4	6	3	3	2

(OR)

b) The number of runs scored by 11 players of a cricket team of a school are 5, 19, 42, 11, 50, 30, 21, 0, 52, 36, 27.Find the median.

8. a) Calculate the correlation coefficient between the following data:

X:	5	9	13	17	21
Y:	12	20	25	33	35

(OR)

b) Prove that the coefficient of correlation is the geometric mean of the coefficients of regression.

9. a) From the following data of the sales figures determine the trend line by freehand curve method.

Years:	1978	1979	1980	1981	1982	1983	1984	1985	1986
Sales:	60	80	70	100	80	120	110	140	130

(OR)

Cont…

b) Calculate the 3 –yearly moving averages of the data given below:

Years:	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Sales:	3	4	8	6	7	11	9	10	14	12

Draw a graph to represent the moving averages. Also predict the sale for 1993.

10.a) An index is 100 in 1992.It rises 15% in 1993,falls 4% in 1994,falls 2% in 1995 and rises 10% in 1996.Calculate the index for 5 years with 1992 as the base.

(OR)

b) If the index number of Laspeyre is 133.2 then find the value of x from the following data:

Commodity	Base Year		Current Year Price
	Price	Value	
P	5	12	8
Q	18	10	x
R	13	20	15

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11. a) The following figures relate to the cost of construction of a house in Delhi.

Item:	Cement	Steel	Bricks	Timber	Labour	Miscellaneous
Expenditure:	20%	18%	10%	15%	25%	12%

Represent the data by a pie diagram.

(OR)

b) If a,b,c,d are in geometric progression, show that $(b-c)^2+(c-a)^2+(d-b)^2=(a-d)^2$

12. a) Calculate the geometric mean for the following data:

X:	12	13	14	15	16	17
F:	5	4	4	3	2	1

(OR)

b) If the arithmetic mean of two numbers is 10 and their geometric mean is 8,find their harmonic mean.Find the numbers also.

13. a) Calculate the correlation coefficient between X and Y for the following data:

X:	3	4	5	8	7	9	6	2	1
Y:	5	3	4	7	8	7	6	9	2

(OR)

b) Find the regression equation of X on Y and the coefficient of correlation from the following data: $\sum X=60, \sum X^2=4160, \sum Y=40, \sum Y^2=1720, \sum XY=1150, N=10$

14. a) From the following data calculate the 4-yearly moving average and determine the trend values.

Year	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Values	50	36.5	43	44.5	38.9	38.1	32.6	41.7	41.1	33.8

(OR)

b) Draw a trend line by the method of semi-averages.

Year:	1991	1992	1993	1994	1995	1996
Sales:	60	75	81	110	106	120

15. a) Using Simple Average Method,From the following data construct an index for 1995 taking 1994 as base:

Commodities:	A	B	C	D	E
Price in 1994 (Rs.)	50	40	80	110	20
Price in 1995 (Rs.)	70	60	90	120	20

(OR)

b) Show that Fisher's ideal index satisfies both time reversal and factor reversal tests, using the following data commonly.

Commodity	Price(1990)	Quantity(1990)	Price(1992)	Quantity(1992)
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

Z-Z-Z END