

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BCom DEGREE EXAMINATION MAY-2022
(First Semester)**

Branch – **COMMERCE(COST AND MANAGEMENT ACCOUNTING)**

BUSINESS MATHEMATICS AND STATISTICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(5x 1 = 5)

1. In simple interest the formula for rate of interest

a) $\frac{100}{Pn}$	b) $\frac{100I}{Pn}$
c) $\frac{100}{n}$	d) $\frac{100}{P}$
2. If a smooth curve is drawn along all points of a frequency polygon, this is known as

a) Frequency curve	b) Straight line
c) Histogram	d) Lorentz curve
3. The Range is

a) L-S	b) L+S
c) -L+S	d) -L-S
4. The range of the correlation

a) -1 to 0	b) 1 to -1
c) -1 to 1	d) 0 to 1
5. The performance of a random experiment is trial and the output is

a) Experiment	b) Variable
c) Toss	d) Event

SECTION - B (15 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 3 = 15)

6. (a) The sum of three numbers in G.P is 35 and their product is 1000. Find the numbers.
(OR)
- (b) A sum of money amounted to Rs 1,071 in 6 months and Rs.1,106 in 16 months.
Calculate the rate of simple interest.
- (c) Calculate the compound interest for Rs 2,500 for 4 years at 8% per annum.
7. (a) Describe the functions of Statistics.

(OR)

- (b) Draw a Histogram and hence find the modal wage.

Weekly wage in Rs (Mid value)	310	330	350	370	390
No of Laboureres	25	50	75	60	15

8. (a) Find the Bowley's coefficient of skewness for the following frequency distribution

No of children per family	0	1	2	3	4	5	6
No of families	7	10	16	25	18	11	8

(OR)

- (b) Find the Quartile deviation and its coefficient for the following values
25 24 23 32 40 27 30 25 20 10 15 45

Cont...

9. (a) Calculate Karl Pearson's coefficient of correlation from the following data

x	15	25	45	38	26	53
y	12	17	21	27	23	10

(OR)

- (b) Explain the concept of scatter diagram.
10. (a) A symmetrical die is thrown. Find the probability for (i) 6 (ii) not 6 (iii) 7 (iv) less than 7

(OR)

- (b) Illustrate the properties of Binomial and Poisson distributions.

SECTION -C (30 Marks)

Answer ALL questions

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

11. (a) Prove that $(A \cup B) \cup C = A \cup (B \cup C)$

- (b) Prove that (i) $(A \cup B)^1 = A^1 \cap B^1$ (ii) $(A \cap B)^1 = A^1 \cup B^1$

(OR)

- (c) 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) Explain the Various types of Diagrammatic representations of Statistical data.

(OR)

- (b) The frequency distribution of marks in Statistics obtained by 100 students in a class is given below.

Marks	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
No. of Students	7	11	24	32	9	14	2	1

Draw ogives (less than and more than type) for this distribution and use it to determine the median.

13. (a) Find the mean, median and mode for the following data.

C.I	0-20	20-40	40-60	60-80	80-100
F	8	12	30	20	10

(OR)

- (b) Calculate standard deviation and its relative measure for the following data.

C.I	10-20	20-30	30-40	40-50	50-60	60-70
F	8	11	27	10	5	3

14. (a) Calculate the coefficient of rank correlation from the following data:

X	:68	64	75	50	64	80	75	40	55	64
Y	:62	58	68	45	81	60	68	48	50	70

(OR)

- (b) Derive X only regression equation from the following data.

Marks in Mathematics (x):	25	28	35	32	31	36	29	38	34	32
Marks in Statistics (y):	43	46	49	41	36	32	31	30	33	39

15. (a) A bag contains 7 red and 5 white balls. 4 balls are drawn at random. What is the probability that (a) all of them are red (b) two of them are red and two white?

(OR)

- (b) Ten Coins are tossed simultaneously. Find the probability of getting (i) at least 7 heads (ii) exactly 7 heads (iii) atmost 7 heads

Z-Z-Z

END