

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BBA DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Common to Branches – BUSINESS ADMINISTRATION/ BUSINESS
ADMINISTRATION (IS) / BUSINESS ADMINISTRATION (RM)

BUSINESS MATHEMATICS AND STATISTICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Any periodical amount of fixed amount made at a regular interval is
 - (i) Simple interest
 - (ii) Compound interest
 - (iii) Annuity
 - (iv) Revenue
- 2 Mode can be represented graphically using
 - (i) Histogram
 - (ii) bar diagram
 - (iii) Pie diagram
 - (iv) pictogram
- 3 If r is correlation between two variables x and y then,
 - (i) $0 \leq r \leq 1$
 - (ii) $-1 \leq r \leq 0$
 - (iii) $-1 \leq r \leq 1$
 - (iv) $1 \leq r \leq 2$
- 4 Which of the following methods assumes no trend in estimating the seasonal variations?
 - (i) Method of simple averages
 - (ii) Method of link relatives
 - (iii) Method of ratio-to-moving average
 - (iv) Method of ratio-to-trend
- 5 The best average for the construction of index number is
 - (i) Arithmetic mean
 - (ii) Median
 - (iii) Mode
 - (iv) Geometric mean

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a What amount lent at 10% p.a. compound interest will fetch Rs 630 as interest in 2 years?
OR

- b Develop a Pie chart for the following data:

Team of expenditure	Food	Medicine	Clothing	Education	Saving
Amount spent on in Rs	3750	1875	1875	1200	7500

- 7 a Calculate mean, median and mode for the following data:

Price (Rs)	70	65	68	70	75	73	80	70	83	86
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OR

- b Explain the various absolute measures of dispersion. Compare their merits and demerits.

- 8 a Compute rank correlation between the preferences of the two judges:

Judge I	1	3	4	5	6	2	8	7	10	9
Judge II	3	7	2	8	5	10	9	6	4	1

OR

- b Explain the types of correlation with an example for each one.

- 9 a Solve the following data using the 3 yearly moving average and estimate the trend values

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Production (Rs)	21	22	23	25	24	22	25	26	27	26

OR

- b State the merits and demerits of the method of ratio-to-moving average.

Cont...

- 10 a Explain why index numbers are considered as economic barometers of a country.

OR

- b Calculate price index numbers by weighted A.M & G.M

Item	A	B	C	D	E
Weight	40	25	15	10	10
Price in 2021	25	50	40	10	20
Price in 2022	40	80	60	20	40

SECTION -C (30 Marks)

Answer ALL questions

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

- 11 a Obtain the marginal revenue and average revenue when $x=10$ from the revenue function $Y = 32X - X^2$.

OR

- b Draw a less than ogive and more than ogive and hence find the median

Weight (Rs.)	45-50	50-55	55-60	60-65	65-70	70-75	75-80
No of students	5	32	47	64	21	6	3

- 12 a Calculate geometric mean and harmonic mean for the following data

Value	10	15	20	25	40	72
Frequency	1	3	4	10	5	2

OR

- b Calculate standard deviation for the following data

Age	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of Employees	170	110	80	45	40	30	25

- 13 a Obtain the correlation coefficient for the following data:

X	6	8	12	15	18	20	40	37
Y	10	17	16	14	12	18	15	30

OR

- b Given below are the price (x) and quantity (y) of a product, obtain the two regression equations

X	10	12	13	12	16	15
Y	40	38	43	45	37	43

- 14 a The production of a company is given below, fit a straight line trend and obtain the trend values using the method of least squares. Estimate the production for the year 2024

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Production	65	68	59	55	50	52	54	50	42

OR

- b Describe the method of ratio-to-trend. What are the merits and demerits of the method?

- 15 a Compute the Laspeyres's, Paasche's and Fisher's index number for the following data.

Commodity	Price		Quantity	
	2021	2022	2021	2022
A	2	4	8	6
B	5	6	10	5
C	4	5	14	10
D	2	2	19	13

OR

- b Compute fisher's ideal index number and show that it satisfies the time reversal and actor reversal tests.

Commodity	Base year		Current year	
	Quantity	Price	Quantity	Price
A	12	10	15	12
B	15	7	20	5
C	24	5	20	9
D	5	16	5	14

Z-Z-Z

END