

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(Fourth Semester)

Branch- COMPUTER SCIENCE WITH DATA ANALYTICS

APPLIED STATISTICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. Choose when a sample size is increased the effects upon the sampling error?
(i) It increases the sampling error (ii) It reduces the sampling error
(iii) It has no effect on the sampling error (iv) All of the above
2. Identify from the following which is not a component of time series.
(i) Regular variations (ii) Seasonal variations
(iii) Irregular variations (iv) Cyclical variations
3. Index number is a type of _____.
(i) Dispersion (ii) Average (iii) Correlation (iv) Regression
4. Which among the following is a type of control chart for variables?
(i) C chart (ii) P chart (iii) \bar{X} chart (iv) U chart
5. Indicate the function in Excel is a program developed by Microsoft.
(i) Spreadsheet (ii) Document
(iii) Data management (iv) All of the above

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

6. (a). Outline the importance of Randomization Numbers method.
OR
(b). Explain sampling and non sampling errors.
7. (a). Explain the components of time series
OR
(b). State the assumptions of least square method.
8. (a). Bring out the measures of unweighted index numbers.
OR
(b). State the time reversal test and factor reversal test.
9. (a). What are the advantages and limitations of statistical quality control?
OR
(b). Narrate the control chart for fraction defective.

Cont...

10. (a). State any three formulas for measure of dispersion.

OR

- (b). Explain ANOVA test in Excel.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

11. (a). Discuss the stratified random sampling and systematic sampling methods.

OR

- (b). Elucidate the various Non probability sampling methods.

12. (a). Identify a trend line from the following data by the method of four yearly moving averages

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Production	464	515	518	467	502	540	557	571	586	612

OR

- (b). Prepare the trend values by the method of least square from the following data.

Year	2000	2001	2002	2003	2004	2005
Production	7	9	12	15	18	23

13. (a). Analyze the following data by price index numbers, using (i) Laspeyre's (ii). Paasche's and (iii) Fisher's methods.

Source	2001		2002	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

OR

- (b). Infer the cost of living index number for the following data.

Items	Price		Weight
	Base year	Current year	
Food	30	47	4
Fuel	8	12	1
Clothing	14	18	3
House rent	22	15	2
Miscellaneous	25	30	1

14. (a). A machine is set to deliver the packets of a given weight. Ten samples of size five each were examined and the following results were obtained.

Sample No	1	2	3	4	5	6	7	8	9	10
Mean	43	49	37	44	45	37	51	46	43	47
Range	5	6	5	7	7	4	8	6	4	6

Calculate the values for the central line and control limits for the mean chart and range chart. Comment on the state of control.

OR

- (b). Describe the benefits of statistical quality control.

15. (a). Highlight how to calculate Poisson distribution calculate for excel.

OR

- (b). Trace how to calculate Correlation Coefficient in Excel.

Z-Z-Z

END