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22SOU412N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BA DEGREE EXAMINATION DECEMBER 2025
(Fourth Semester)

Branch - **SOCIOLOGY**

SOCIAL STATISTICS – II WITH COMPUTER APPLICATIONS

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	In statistics, attributes refer to: a) Numerical variables b) Qualitative characteristics c) Quantitative measures d) Time series data	K1	CO1
	2	Which condition ensures independence of attributes A and B? a) AD > BC b) AD < BC c) AD < BC d) None of these	K2	CO1
2	3	In probability, the sum of probabilities of all outcomes in a sample space is: a) 1 b) 0 c) Greater than 1 d) Less than 0	K1	CO3
	4	If a coin is tossed twice, the probability of getting exactly one head is: a) 1/4 b) 1/2 c) 1/3 d) 3/4	K2	CO3
3	5	Vital statistics primarily deals with: a) Economic data b) Industrial data c) Sales figures d) Birth and death records	K1	CO2
	6	Infant Mortality Rate (IMR) is expressed as deaths per: a) 10 live births b) 100 live births c) 1000 live births d) 10,000 live births	K2	CO2
4	7	The four components of time series are: a) Mean, Median, Mode, Range b) Trend, Seasonal, Cyclical, Irregular c) Correlation, Regression, Mean, Mode d) Variance, Skewness, Kurtosis, Quartiles	K1	CO4
	8	Which method is commonly used for finding trend in time series? a) Method of Moving Averages b) Karl Pearson's coefficient c) Standard deviation d) Harmonic mean	K2	CO4
5	9	To draw a trend line in Excel, we use: a) Insert → Trendline b) Format → Axis c) View → Charts d) Data → Analysis ToolPak	K1	CO5
	10	Which Excel feature is used to calculate Poisson probability? a) =POI.DIST ( ) b)=POISSON.DIST( ) c) POISSON.DST ( ) d) =POISSON ( )	K2	CO5

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the conditions for consistency of data in a 2×2 table of attributes.	K2	CO1
		(OR)		
	11.b.	Explain Yule's coefficient of association? Write its properties.		

Cont...

2	12.a.	Apply the addition theorem of probability to explain how the probability of occurrence of at least one of two events is obtained. Illustrate with an example.	K3	CO3
		(OR)		
	12.b.	A card is drawn from a well-shuffled pack of 52 cards. Find the probability that it is: (i) a red card, (ii) a king or a queen, (iii) not a spade.		
3	13.a.	Explain the uses of life tables in demographic studies. Illustrate with an example of how a life table entry is applied.	K3	CO2
		(OR)		
	13.b.	Apply your knowledge to explain any three methods of collecting vital statistics with suitable examples.		
4	14.a.	Using 3-yearly moving averages, Analyse the trend values for the following data: Year: 2015 | 2016 | 2017 | 2018 | 2019 | 2020 Production: 45 | 50 | 54 | 57 | 63 | 72	K4	CO4
		(OR)		
	14.b.	Classify the components of time series with suitable example.		
5	15.a.	Explain how MS Excel can be used to test the independence of attributes. Analyze its advantages over manual calculation.	K4	CO5
		(OR)		
	15.b.	Use Excel to compute the probability of exactly 4 successes in a Binomial distribution with n = 8 and p = 0.5. Explain the steps and analyze the result.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks $(3 \times 10 = 30)$

Module No.	Question No.	Question	K Level	CO
1	16	(a) Define *association of attributes* and explain the difference between positive association and negative association with examples. (b) In a group of 200 people, 120 are smokers, 100 are drinkers, and 60 are both. Test whether smoking and drinking are independent attributes.	K2	CO1
2	17	Explain the properties of the Binomial distribution. Illustrate with an example related to tossing a fair coin 6 times, and calculate the probability of getting exactly 4 heads.	K3	CO3
3	18	Utilize the following abridged life table data to estimate the probability that a newborn survives to age 10. • $l_0 = 10{,}000$, $l_{10} = 9{,}200$ Explain the steps involved in constructing a life table and its important uses in demography and health research.	K3	CO2
4	19	Analyze the data by applying the method of least squares to fit a straight-line trend. Year: 2020 | 2021 | 2022 | 2023 | 2024 | 2025 Production: 60 | 72 | 65 | 90 | 95 | 100	K4	CO4
5	20	Analyze and compare the theoretical bases, assumptions, and practical implications of the Binomial, Poisson, and Normal distributions. How can MS Excel be used to illustrate these differences when analyzing real-world data? Use appropriate examples in your discussion.	K4	CO5

Z-Z-Z END