PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BA DEGREE EXAMINATION MAY 2024
(Fourth Semester)

Branch - **SOCIOLOGY**

SOCIAL STATISTICS – II WITH COMPUTER APPLICATIONS

Time: 3 Hours   Maximum: 50 Marks

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

1. Choose the Yule's coefficient of 'Q' is calculated by the formula

    (i) $\dfrac{(AB)(\alpha\beta) - (A\beta)(\alpha B)}{(AB)(\alpha\beta) + (A\beta)(\alpha B)}$ (ii) $\dfrac{(AB)(\alpha\beta) - (A\beta)(\alpha B)}{(AB)(\alpha\beta) - (A\beta)(\alpha B)}$

    (iii) $\dfrac{(AB)(\alpha\beta) + (A\beta)(\alpha B)}{(AB)(\alpha\beta) + (A\beta)(\alpha B)}$ (iv) $\dfrac{(AB)(\alpha\beta) + (A\beta)(\alpha B)}{(AB)(\alpha\beta) - (A\beta)(\alpha B)}$

2. Mention that, In multiplication theorem of probability, the events are
    (i) Joint   (ii) Mutually exclusive
    (iii) Independent   (iv) Conditional

3. What does the symbol 'lx' represent in a mortality table?
    (i) Probability of survival to age x   (ii) Cumulative mortality up to age x
    (iii) Probability of death at age x   (iv) Number of deaths at age x

4. Which is preferred equation for a straight line is given by
    (i) $Y_t = a + bt$ (ii) $Y_t = a + b$ (iii) $Y_t = a - bt$ (iv) $Y_t = a - b$

5. Identify, which function is used for calculating cumulative probabilities of a normal distribution in MS excel?
    i) PROB.NORMAL   ii) NORM.PROB
    iii) NORM.DIST   iv) NORMAL.DIST

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

6. a) Develop For (AB) = 256, (αB) = 768, (Aβ) = 48 and (αβ) = 144, check whether A and B are independent, positively associated or negatively associated.

    (OR)

    b) How do you interpret Yule's coefficient of association (Q)?

7. a) Outline the concept of probability and mention its axioms.

    (OR)

    b) Calculate when Six coins are tossed 6,400 times. Under the Poisson distribution, find the approximate probability of getting six heads 'r' times.

8. a) Narrate about vital statistics and state its uses.

    (OR)

    b) Bring out the difference between death rates and birth rates.

9. a) What is time series and list out the components of time series?

(OR)

b) The following table gives the number of workers employed in a small industry during the years 1996 – 2005. Calculate the four - yearly moving averages:

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
No. of workers	430	470	450	460	480	470	470	500	490	480

10. a) Sketch out the built-in statistical functions in MS excel.

(OR)

b) Explain the procedure to compute Poisson probabilities in MS excel with an example.

SECTION - C (30 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 6 = 30)

11. a) Summarize about association of attributes and describe its types.

(OR)

b) Classify that, vaccination be regarded as a preventive measure for small-pox from the data given below?

'Of 1482 persons in a locality exposed to small-pox, 368 in all were attacked'.
'Of 1482 persons, 343 had been vaccinated and out of these only 35 were attacked'.

12. a) Discover When Ten coins are thrown simultaneously. Find the probability of getting atleast seven heads.

(OR)

b) Elucidate the properties of Normal distribution.

13. a) Highlight the purpose and procedure for standardizing death rates.

(OR)

b) Discover the various components of life table.

14. a) Discuss the different methods for measurement of trend.

(OR)

b) In a Examine industry, the production of a certain commodity (in '000 units) during the years 1994 – 2004 is given in the adjoining table

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Production ('000 units)	66.6	84.9	88.6	78.0	96.8	105,2	93.2	11.6	88.3	117.0	115.2

Fit a straight line by least square method.

15. a) Point out the methods of handing data in excel.

(OR)

b) Discuss the procedure to determine trend using the moving averages in MS excel.