22SOU412N / 18SOU12 / N18SOU12

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BA DEGREE EXAMINATION MAY 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	What does a Yule's coefficient (Q) value of -0.8 indicate? a) Strong positive association b) Weak positive association c) Strong negative association d) No association	K1	CO1
	2	If two attributes are studied simultaneously the number of classes will be _____ a) 5 b) 9 c) 2 d) 8	K2	CO1
2	3	Probability is always a value lies in between: a) -1 and 1 b) 0 and 1 c) 0 and ∞ d) -∞ and ∞	K1	CO2
	4	If A and B are two mutually exclusive events, then P(A ∪ B) is given by: a) P(A) × P(B) b) P(A) + P(B) - P(A ∩ B) c) P(A) + P(B) d) P(A) - P(B)	K2	CO2
3	5	The _____refers to the number of deaths per thousand of the population in a given period of a particular area. a) S.D.R b) G.P.R c) C.D.R d) N.P.R	K1	CO3
	6	_____be useful to compare the fertility of two region under different times. a) G.F.R b) G.P.R c) S.F.R d) N.P.R	K2	CO3
4	7	Which method is used to measure Seasonal Variation? a) Moving Average b) Seasonal Index c) Simple Averages Method d) Ratio to Trend	K1	CO4
	8	The long-term movement of a time series is called the _____ component. a) Trend b) Seasonality c) Cyclic Variation d) Random Variation	K2	CO4
5	9	Which Excel function is used to compute Binomial Probability? a) BINOM.DIST b) POISSON.DIST c) BINORM.DIST d) EXP.DIST	K1	CO5
	10	The Normal Distribution in Excel can be calculated using: a) NORM.DIST b) NORM.INV c) NORM.S.DIST d) All of the above	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.	Calculate Yule's coefficient of association for the following data: i) (A) = 600; (B) = 800 ;(AB) = 480; N = 1000 ii) (A) = 600; (B) = 800; (AB) = 600; N = 1000	K4	CO1
		(OR)		
	11.b.	Given N = 2500, (A) = 420, (AB) = 85 and (B) = 670. Find the missing values.		

Cont...

<table>
<tr><td rowspan="3">2</td><td>12.a.</td><td colspan="3">If X and Y are independent Poisson variates such that $P(X=1) = P(X=2)$ and $P(Y=2) = P(Y=3)$. Find the variance of $X-2Y$</td><td rowspan="3">K4</td><td rowspan="3">CO2</td></tr>
<tr><td colspan="4">(OR)</td></tr>
<tr><td>12.b.</td><td colspan="3">If X is a normal variate with mean 30 and standard deviation 5. Find the probabilities that (i) $26 \le X \le 40$, (ii) $X \ge 45$, (iii) $|X-30| > 5$</td></tr>
<tr><td rowspan="3">3</td><td>13.a.</td><td colspan="3">Explain various method of measuring Mortality rates.</td><td rowspan="3">K3</td><td rowspan="3">CO3</td></tr>
<tr><td colspan="4">(OR)</td></tr>
<tr><td>13.b.</td><td colspan="3">Explain the concept of a life table and demonstrate its applications.</td></tr>
<tr><td rowspan="3">4</td><td>14.a.</td><td colspan="3">Explain the Semi-Average Method with an example and discuss their merits and demerits.</td><td rowspan="3">K3</td><td rowspan="3">CO4</td></tr>
<tr><td colspan="4">(OR)</td></tr>
<tr><td>14.b.</td><td colspan="3">Calculate 5-yearly and 7-yearly moving averages methods of the data given below to obtain trend values and give their graphic representation
<table>
<tr><th>Year</th><th>Value</th><th>Year</th><th>Value</th><th>Year</th><th>Value</th></tr>
<tr><td>1</td><td>220</td><td>11</td><td>260</td><td>21</td><td>292</td></tr>
<tr><td>2</td><td>208</td><td>12</td><td>254</td><td>22</td><td>284</td></tr>
<tr><td>3</td><td>156</td><td>13</td><td>244</td><td>23</td><td>276</td></tr>
<tr><td>4</td><td>210</td><td>14</td><td>236</td><td>24</td><td>270</td></tr>
<tr><td>5</td><td>218</td><td>15</td><td>260</td><td>25</td><td>290</td></tr>
<tr><td>6</td><td>240</td><td>16</td><td>280</td><td>26</td><td>310</td></tr>
<tr><td>7</td><td>230</td><td>17</td><td>270</td><td>27</td><td>300</td></tr>
<tr><td>8</td><td>220</td><td>18</td><td>260</td><td>28</td><td>296</td></tr>
<tr><td>9</td><td>228</td><td>19</td><td>254</td><td>29</td><td>286</td></tr>
<tr><td>10</td><td>244</td><td>20</td><td>270</td><td>30</td><td>312</td></tr>
</table></td></tr>
<tr><td rowspan="3">5</td><td>15.a.</td><td colspan="3">Explain Poisson distribution and Poisson function in MS Excel.</td><td rowspan="3">K5</td><td rowspan="3">CO5</td></tr>
<tr><td colspan="4">(OR)</td></tr>
<tr><td>15.b.</td><td colspan="3">Explain Normal distribution and Normal function in MS Excel.</td></tr>
</table>

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Show whether A and B are independent, positively associated or negatively associated in each of the following cases: a) N = 1000; (A) = 450; (B) = 600; (AB) = 340 b) (A) = 480; (AB) = 290; (α) = 585; (αB) = 383 c) N = 1000; (A) = 500; (B) = 400; (AB) = 200	K4	CO1
2	17	If two dice are thrown, what is the probability that the sum is (a) greater than 8, and (b) neither 7 nor 11?	K5	CO2
3	18	Explain various method of measuring fertility rates.	K4	CO3
4	19	Examine the methods of seasonal variation.	K5	CO4
5	20	a) Fit a Straight Line Trend in Excel b) Explain Binomial distribution and Binomial function in MS Excel.	K4	CO5

Z-Z-Z END