22NMB103N/ 22NMB103

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BVoc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch - **NETWORKING & MOBILE APPLICATION**

STATISTICAL TECHNIQUES

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	The total angle at the center of pie chart is a) 90° b) 180° c) 270° d) 360°	K1	CO1
	2	The mode of 5,6,7,5,4,6,10,5,8 is a) 5 b) 6 c) both 5 and 6 d) No mode	K2	CO1
2	3	When the values of two variables move in the same direction then the correlation is a) linear b) nonlinear c) positive d) negative	K1	CO2
	4	If the regression coefficients b_{xy}= -0.4 and b_{yx}= -1.6, then the correlation coefficient is a) 0.8 b) -0.8 c) 0.64 d) -0.64	K2	CO2
3	5	In time series the cause of floods and cyclones are associated with a) secular trend b) seasonal variations c) cyclical fluctuations d) irregular variations	K1	CO3
	6	A series comprises of five values, as given below: 63, 75,72,78,81. Its moving averages of order 3 are: a) 64,70,76 b) 70,75,77 c) 66,71,76 d) 66,71,77	K2	CO3
4	7	The probability of a certain events is a) 0 b) 1 c) -1 d) 0.5	K1	CO4
	8	If 3 coins are tossed simultaneously, the probability of getting atleast two heads is a) 1/8 b) 3/8 c)1/2 d) 1/4	K2	CO4
5	9	The Excel function that counts the number of numeric entries a) NUM( ) b) COUNT( ) c) SUM( ) d) COUNTIF( )	K1	CO5
	10	In the function VARP, the letter P stands for a) Probability b) Proportion c) Percentage d) Population	K2	CO5

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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.	Describe Histogram with an example.	K3	CO1
		(OR)		
	11.b.	Solve the following data to calculate the mean and mode. Weight (kg): 47, 50, 59, 65, 68, 53, 71, 74, 65, 68		
2	12.a.	Apply Karl Pearson's coefficient of correlation for the following data: Income ('000): 20, 30, 33, 40, 15, 13, 26, 38, 35, 43 Expenditure ('000): 7, 9, 8, 11, 5, 4, 8, 10, 9, 10	K3	CO2
		(OR)		
	12.b.	Identify and explain the differences between correlation and regression.		
3	13.a.	Below are given the figures of production (in thousand tonnes) of a sugar factory. Use the 3 yearly moving average method to find the trend values. Year: 2015, 2016, 2017, 2018, 2019, 2020, 2021 Production: 80, 90, 92, 83, 94, 99, 92	K4	CO3
		(OR)		
	13.b.	Analyse the following data and findthe seasonal indices by the method of simple averages : 2021: 68, 62, 61, 63 2022: 65, 58, 66, 61 2023: 68, 63, 63, 67 (Year; I Quarter; II Quarter; III Quarter; IV Quarter)		
4	14.a.	Explain the following terms: (i) mutually exclusive events (ii) independent events (iii) conditional probability	K5	CO4
		(OR)		
	14.b.	A lot contains 10 items of which 3 are defective. Three items are chosen at random from the lot one after another. Estimate the probability that all the three are defective if the draws are made (i) with replacement and (ii) without replacement.		
5	15.a.	List the different time series functions available in MS Excel and describe each one with an example.	K4	CO5
		(OR)		
	15.b.	Describe the steps to compute mean and standard deviation using MS Excel.		

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SECTION -C (30 Marks)

Answer **ANY THREE** questions

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

<table>
<tr><th>Module No.</th><th>Question No.</th><th>Question</th><th>K Level</th><th>CO</th></tr>
<tr><td>1</td><td>16</td><td>The scores of two batsmen A and B in ten innings during a certain season are given. Analyse the data and find which batsman is more consistent in scoring.
<table>
<tr><td>A</td><td>32</td><td>28</td><td>47</td><td>62</td><td>71</td><td>39</td><td>10</td><td>60</td><td>96</td><td>14</td></tr>
<tr><td>B</td><td>19</td><td>31</td><td>48</td><td>53</td><td>67</td><td>90</td><td>10</td><td>62</td><td>40</td><td>80</td></tr>
</table></td><td>K4</td><td>CO1</td></tr>
<tr><td>2</td><td>17</td><td>Examine the data given and obtain the two regression equations X on Y and Y on X. Also calculate the value of X when Y =50.
<table>
<tr><td>Price (Rs)(X)</td><td>40</td><td>38</td><td>35</td><td>42</td><td>30</td></tr>
<tr><td>Amount Demanded (Y)</td><td>30</td><td>35</td><td>40</td><td>36</td><td>29</td></tr>
</table></td><td>K4</td><td>CO2</td></tr>
<tr><td>3</td><td>18</td><td>Fit a straight line trend to the given data, find the trend values and estimate the sales for the year 2024.
<table>
<tr><td>Year</td><td>2013</td><td>2014</td><td>2015</td><td>2016</td><td>2017</td><td>2018</td><td>2019</td></tr>
<tr><td>Sales</td><td>77</td><td>88</td><td>94</td><td>85</td><td>91</td><td>98</td><td>90</td></tr>
</table></td><td>K5</td><td>CO3</td></tr>
<tr><td>4</td><td>19</td><td>Compare and contrast the different the properties of Binomial, Poisson and Normal distributions.</td><td>K3</td><td>CO4</td></tr>
<tr><td>5</td><td>20</td><td>Explain the computation procedure for finding Regression using MS Excel. Also write about the measures that has to be interpreted from the results of regression</td><td>K5</td><td>CO5</td></tr>
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Z—Z-Z END