22NMB103N / 22NMB103

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BVoc DEGREE EXAMINATION DECEMBER 2023
(First Semester)

Branch – **NETWORKING AND MOBILE APPLICATIONS**

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	Pie diagram represents the components of a factor by: a) Percentages b) Angles c) Sectors d) Circles	K1	CO1
	2	Mean is a measure of : a) Location b) Dispersion c) Correlation d) None of the above	K2	CO1
2	3	The value of correlation ratio varies from: a) -1 to 1 b) -1 to 0 c) 0 to 1 d) 0 to ∞	K1	CO2
	4	If ρ=0, the lines of regression are: a) Coincident b) Parallel c) Perpendicular to each other d) None of the above	K2	CO2
3	5	A Time series consists of: a) Two components b) Three components c) Four components d) Five components	K1	CO3
	6	The Simple average method is used to calculate: a) trend values b) cyclic variation c) seasonal indices d) none of these	K2	CO3
4	7	Probability is expressed as: a) Ratio b)Proportion c) Percentages d) All the above	K1	CO4
	8	In tossing three coins at a time, the probability of getting at most one head is: a) 3/8 b) 7/8 c) 1/2 d) 1/8	K2	CO4
5	9	Range function in MS Excel is a) range(Min, Max) b) Range (MIN, MAX) c) Range(Min, Max) d) range (MIN, MAX)	K1	CO5
	10	Median function in MS Excel is a) MEDIAN( ) b) Median( ) c) Modal( ) d) MODAL( )	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

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

<table>
<tr><th>Module No.</th><th>Question No.</th><th>Question</th><th>K Level</th><th>CO</th></tr>
<tr><td rowspan="5">1</td><td>11.a.</td><td>Draw a Histogram for the following data.
<table><tr><td>Size</td><td>30-40</td><td>40-50</td><td>50-60</td><td>60-70</td><td>70-80</td></tr><tr><td>f</td><td>3</td><td>5</td><td>12</td><td>8</td><td>4</td></tr></table></td><td rowspan="5">K3</td><td rowspan="5">CO1</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>11.b.</td><td>The following table gives the height of 7 students. Determine Mean, Median and Mode.
<table><tr><td>Height (in cms)</td><td>160</td><td>161</td><td>162</td><td>163</td><td>164</td><td>165</td><td>166</td></tr><tr><td>No.of students</td><td>27</td><td>146</td><td>435</td><td>398</td><td>210</td><td>128</td><td>98</td></tr></table></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="5">2</td><td>12.a.</td><td>Apply the Coefficient of Correlation between X-Advertisement Expenditure and Y-Sales.
<table><tr><td>X</td><td>10</td><td>12</td><td>18</td><td>8</td><td>13</td><td>20</td><td>22</td><td>15</td><td>5</td><td>17</td></tr><tr><td>Y</td><td>88</td><td>90</td><td>94</td><td>86</td><td>87</td><td>92</td><td>96</td><td>94</td><td>88</td><td>85</td></tr></table></td><td rowspan="5">K3</td><td rowspan="5">CO2</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>12.b.</td><td>From the data given below, Compute the Regression equation of Y on X.
<table><tr><td>Price(Rs)</td><td>10</td><td>12</td><td>13</td><td>12</td><td>16</td><td>15</td></tr><tr><td>Amount Demanded</td><td>40</td><td>38</td><td>43</td><td>45</td><td>37</td><td>43</td></tr></table></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="5">3</td><td>13.a.</td><td>Obtain the trend values by 3 yearly Moving average, determine the trend values.
<table><tr><td rowspan="2">Year</td><td>1983</td><td>1984</td><td>1985</td><td>1986</td><td>1987</td></tr><tr><td>1988</td><td>1989</td><td>1990</td><td>1991</td><td>1992</td></tr><tr><td rowspan="2">Production in Kg</td><td>21</td><td>22</td><td>23</td><td>25</td><td>24</td></tr><tr><td>22</td><td>25</td><td>26</td><td>27</td><td>26</td></tr></table></td><td rowspan="5">K4</td><td rowspan="5">CO3</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>13.b.</td><td>Explain the Components of Time series.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="5">4</td><td>14.a.</td><td>A Sub-Committee of 6 members is to be formed out of a group consisting of 7 men and 4 women. Calculate the probability that the sub-committee will consist of i) exactly 2 women and ii) at least 2 women.</td><td rowspan="5">K4</td><td rowspan="5">CO4</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>14.b.</td><td>List the properties of Normal Distribution.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td rowspan="5">5</td><td>15.a.</td><td>Explain the computation procedure to find Quartile deviation by using MS Excel.</td><td rowspan="5">K5</td><td rowspan="5">CO5</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>15.b</td><td>Explain the computation procedure to find Skewness Kurtosis by using MS Excel.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2"></td></tr>
</table>

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 following table gives the marks of 7 students. Determine Mean, Median and Mode.
<table>
<tr><td>Marks</td><td>11-20</td><td>21-30</td><td>31-40</td><td>41-50</td><td>51-60</td><td>61-70</td><td>71-80</td></tr>
<tr><td>No.of students</td><td>42</td><td>38</td><td>120</td><td>84</td><td>48</td><td>36</td><td>31</td></tr>
</table></td><td>K4</td><td>CO1</td></tr>
<tr><td>2</td><td>17</td><td>Marks obtained by 8 students in Accountancy(X) and Statistics(Y) are given below. Compute Rank correlation.
<table>
<tr><td>X</td><td>15</td><td>20</td><td>28</td><td>12</td><td>40</td><td>60</td><td>20</td><td>80</td></tr>
<tr><td>Y</td><td>40</td><td>30</td><td>50</td><td>30</td><td>20</td><td>10</td><td>30</td><td>60</td></tr>
</table></td><td>K4</td><td>CO2</td></tr>
<tr><td>3</td><td>18</td><td>Obtain the trend values by 4 yearly Moving average, determine the trend values.
<table>
<tr><td rowspan="2">Year</td><td>1981</td><td>1982</td><td>1983</td><td>1984</td><td>1985</td></tr>
<tr><td>1986</td><td>1987</td><td>1988</td><td>1989</td><td>1990</td></tr>
<tr><td rowspan="2">Production in Kg</td><td>464</td><td>515</td><td>518</td><td>467</td><td>502</td></tr>
<tr><td>540</td><td>557</td><td>571</td><td>586</td><td>612</td></tr>
</table></td><td>K4</td><td>CO3</td></tr>
<tr><td>4</td><td>19</td><td>In a bolt factory, machines M_1 ,M_2 and M_3 manufacture respectively 25,35 and 40 percent of the total output. Of their output 5,4 and 2 percent respectively are defective bolts. One bolt is drawn at random from the product and is found to be defective. What is the probability that it is manufactured in the machine M_3 ?</td><td>K5</td><td>CO4</td></tr>
<tr><td>5</td><td>20</td><td>Explain the computation procedure to find the following time series by using MS Excel.
i) FORECAST TREND
ii) SLOPE AND INTERCEPT</td><td>K5</td><td>CO5</td></tr>
</table>

Z-Z-Z END