

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BVoc DEGREE EXAMINATION MAY 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 statement “ Statistics is both a science and an art” was given by: a)R.A.Fisher b)Tippet c)L.R.Connor d)A.L.Bowley	K1	CO1
	2	Coefficient of variation usually expressed as: a) Ratios b) Percentages c) Units d) None of these	K2	CO1
2	3	The value of Spearman’s correlation coefficient varies from: a) -1 to 1 b) -1 to 0 c) 0 to 1 d) 0 to ∞	K1	CO2
	4	If $\rho=0$, the lines of regression are: a) Coincident b) Parallel c) Perpendicular to each other d) None of the above	K2	CO2
3	5	Least square method of fitting a Trend is: a) Most exact b) Least exact c) Full of Subjectivity d) None of these	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	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	K1	CO4
	8	In which distribution, Mean and Variance are equal: a) Poisson distribution b) Binomial distribution c) Normal distribution d) None of the above	K2	CO4
5	9	Range function in MS Excel a) range(Min, Max) b) Range (MIN, MAX) c) Range(Min, Max) d) range (MIN, MAX)	K1	CO5
	10	Standard deviation function in MS Excel is a) S.D () b) s.d() c)VAR () d) var()	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.	Draw a Histogram for the following data.	K3	CO1												
		<table border="1"> <thead> <tr> <th>Size</th> <th>30-40</th> <th>40-50</th> <th>50-60</th> <th>60-70</th> <th>70-80</th> </tr> </thead> <tbody> <tr> <td>f</td> <td>3</td> <td>5</td> <td>12</td> <td>8</td> <td>4</td> </tr> </tbody> </table>			Size	30-40	40-50	50-60	60-70	70-80	f	3	5	12	8	4
	Size	30-40			40-50	50-60	60-70	70-80								
f	3	5	12	8	4											
(OR)																
11.b.		The following table gives the marks of 80 students. Apply Standard deviation.	K3	CO1												
		<table border="1"> <thead> <tr> <th>Marks Below</th> <th>50</th> <th>40</th> <th>30</th> <th>20</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>No.of students</td> <td>12</td> <td>13</td> <td>21</td> <td>19</td> <td>15</td> </tr> </tbody> </table>			Marks Below	50	40	30	20	10	No.of students	12	13	21	19	15
		Marks Below			50	40	30	20	10							
No.of students	12	13	21	19	15											

Cont...

2	12.a.	Apply the Coefficient of Correlation between X-Rainfall(cms) and Y-Production(Tons). <table border="1"> <tr> <td>X</td> <td>32</td> <td>35</td> <td>31</td> <td>38</td> <td>27</td> <td>42</td> <td>57</td> <td>21</td> </tr> <tr> <td>Y</td> <td>52</td> <td>67</td> <td>53</td> <td>47</td> <td>41</td> <td>55</td> <td>63</td> <td>72</td> </tr> </table>	X	32	35	31	38	27	42	57	21	Y	52	67	53	47	41	55	63	72	K3	CO2						
	X	32	35	31	38	27	42	57	21																			
Y	52	67	53	47	41	55	63	72																				
12.b.	(OR) From the data given below, Compute the Regression equation of Y on X. <table border="1"> <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>	Price(Rs)	10	12	13	12	16	15	Amount Demanded	40	38	43	45	37	43													
Price(Rs)	10	12	13	12	16	15																						
Amount Demanded	40	38	43	45	37	43																						
3	13.a.	Obtain the trend values by 3 yearly Moving average, determine the trend values. <table border="1"> <tr> <td>Year</td> <td>1983</td> <td>1984</td> <td>1985</td> <td>1986</td> <td>1987</td> </tr> <tr> <td></td> <td>1988</td> <td>1989</td> <td>1990</td> <td>1991</td> <td>1992</td> </tr> <tr> <td>Production in Kg</td> <td>21</td> <td>22</td> <td>23</td> <td>25</td> <td>24</td> </tr> <tr> <td></td> <td>22</td> <td>25</td> <td>26</td> <td>27</td> <td>26</td> </tr> </table>	Year	1983	1984	1985	1986	1987		1988	1989	1990	1991	1992	Production in Kg	21	22	23	25	24		22	25	26	27	26	K4	CO3
	Year	1983	1984	1985	1986	1987																						
	1988	1989	1990	1991	1992																							
Production in Kg	21	22	23	25	24																							
	22	25	26	27	26																							
13.b.	(OR) Explain the Seasonal variations in a Time series.																											
4	14.a.	There are 2 red, 3 green and 4 black balls of identical size in an Urn. 3 balls are drawn at random. What is the probability that i) they are different colours ii) 2 are green and 1 is black iii) 2 are red and iv) at least 1 is black .	K4	CO4																								
	14.b.	(OR) List the properties of Normal Distribution.																										
5	15.a.	Explain the computation procedure to find Standard deviation and Variance by using MS Excel.	K5	CO5																								
	15.b.	(OR) Explain the computation procedure to find Skewness Kurtosis by using MS Excel.																										

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	Apply Mean, Median and Mode from the following marks. <table border="1"> <tr> <td>Marks</td> <td>0-10</td> <td>10-20</td> <td>20-30</td> <td>30-40</td> <td>40-50</td> </tr> <tr> <td>No.of students</td> <td>3</td> <td>5</td> <td>9</td> <td>3</td> <td>2</td> </tr> </table>	Marks	0-10	10-20	20-30	30-40	40-50	No.of students	3	5	9	3	2	K4	CO1												
Marks	0-10	10-20	20-30	30-40	40-50																							
No.of students	3	5	9	3	2																							
2	17	Examine the relationship between Statistics(X) and Accountancy(Y) marks obtained by students for the following data. <table border="1"> <tr> <td>X</td> <td>90</td> <td>80</td> <td>70</td> <td>65</td> <td>50</td> <td>40</td> <td>30</td> <td>20</td> <td>10</td> </tr> <tr> <td>Y</td> <td>75</td> <td>80</td> <td>70</td> <td>65</td> <td>55</td> <td>60</td> <td>50</td> <td>40</td> <td>45</td> </tr> </table>	X	90	80	70	65	50	40	30	20	10	Y	75	80	70	65	55	60	50	40	45	K4	CO2				
X	90	80	70	65	50	40	30	20	10																			
Y	75	80	70	65	55	60	50	40	45																			
3	18	Obtain the trend values by 4 yearly Moving average, determine the trend values. <table border="1"> <tr> <td>Year</td> <td>1981</td> <td>1982</td> <td>1983</td> <td>1984</td> <td>1985</td> </tr> <tr> <td></td> <td>1986</td> <td>1987</td> <td>1988</td> <td>1989</td> <td>1990</td> </tr> <tr> <td>Production in Kg</td> <td>464</td> <td>515</td> <td>518</td> <td>467</td> <td>502</td> </tr> <tr> <td></td> <td>540</td> <td>557</td> <td>571</td> <td>586</td> <td>612</td> </tr> </table>	Year	1981	1982	1983	1984	1985		1986	1987	1988	1989	1990	Production in Kg	464	515	518	467	502		540	557	571	586	612	K4	CO3
Year	1981	1982	1983	1984	1985																							
	1986	1987	1988	1989	1990																							
Production in Kg	464	515	518	467	502																							
	540	557	571	586	612																							
4	19	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 ?	K5	CO4																								
5	20	Explain the computation procedure to find the following by using MS Excel. i) CORRELATION ii) REGRESSION	K5	CO5																								