

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(First Semester)

Branch – INFORMATION TECHNOLOGY

STATISTICS FOR INFORMATION TECHNOLOGY- I

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	A curve draw for cumulative frequency distribution is _____. a) Ogive b) Histogram c) Bar Chart d) Pie Diagram	K1	CO1
	2	The best measure of central tendency is _____. a) Arithmetic mean b) Geometric mean c) Harmonic mean d) Variance	K2	CO1
2	3	For symmetrical distribution the coefficient of skewness is _____. a) +1 b) -1 c) +3 d) -3	K1	CO2
	4	If $b_{xy} = 0.85$ and $b_{yx} = 0.89$ then the coefficient of correlation is _____. a) 0.87 b) 0.7565 c) 0.08 d) 0.07565	K2	CO2
3	5	$Y_2 - 2Y_1 + Y_0 =$ _____. a) 1 b) 0 c) -1 d) ∞	K1	CO3
	6	The technic of estimating a past figure is termed as _____. a) interpolations b) time series c) extrapolations d) sample	K2	CO3
4	7	The additive model of a time series is expressed as _____. a) $Y = T + S$ b) $Y = T + C$ c) $Y = T + S + C + 1$ d) $Y = C + 1$	K1	CO4
	8	The equation of the Gompertz curve is of the form _____. a) $Y = ka^{bx}$ b) $Y = ka^b$ c) $Y = ka$ d) $Y = ka^x$	K2	CO4
5	9	Which of the following is not a valid function in Ms – Excel. a) sum() b) COUNT() c) SUBTRACT() d) COUNTA()	K1	CO5
	10	_____ calculate the median value of a data set. a) MEDIAN(range) b) median(range) c) Median(range) d) Median(Range)	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.	State the important types of bar diagram.	K3	CO1											
	(OR)														
	11.b.	Calculate standard deviation from the following: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Marks</td> <td>10</td> <td>20</td> <td>30</td> <td>40</td> <td>50</td> <td>60</td> </tr> <tr> <td>No. of Students</td> <td>8</td> <td>12</td> <td>20</td> <td>10</td> <td>7</td> <td>3</td> </tr> </table>			Marks	10	20	30	40	50	60	No. of Students	8	12	20
Marks	10	20	30	40	50	60									
No. of Students	8	12	20	10	7	3									

Cont...

2	12.a.	Calculate Karl Pearson's co-efficient of Skewness for the data given below.	K4	CO2																								
		<table border="1"> <tr> <td>size</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> <tr> <td>Frequency</td> <td>7</td> <td>10</td> <td>14</td> <td>15</td> <td>102</td> <td>136</td> <td>43</td> <td>8</td> </tr> </table>			size	3	4	5	6	7	8	9	10	Frequency	7	10	14	15	102	136	43	8						
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Frequency	7	10	14	15	102	136	43	8																				
		(OR)																										
	12.b.	From the following data calculate the coefficient of rank correlation between X and Y																										
		<table border="1"> <tr> <td>X</td> <td>36</td> <td>56</td> <td>20</td> <td>65</td> <td>42</td> <td>33</td> <td>44</td> <td>50</td> <td>15</td> <td>60</td> </tr> <tr> <td>Y</td> <td>50</td> <td>35</td> <td>70</td> <td>25</td> <td>58</td> <td>75</td> <td>60</td> <td>45</td> <td>80</td> <td>38</td> </tr> </table>	X	36	56	20	65	42	33	44	50	15	60	Y	50	35	70	25	58	75	60	45	80	38				
X	36	56	20	65	42	33	44	50	15	60																		
Y	50	35	70	25	58	75	60	45	80	38																		
3	13.a.	Describe (i) Graphic method (ii) Binomial Expansion method of interpolation and discuss their relative merits and demerits.	K3	CO3																								
		(OR)																										
	13.b.	The expectation of life at different ages of males is shown below.																										
		<table border="1"> <tr> <td>Age(yrs)</td> <td>20</td> <td>25</td> <td>30</td> <td>35</td> <td>40</td> </tr> <tr> <td>Expectation of life</td> <td>33</td> <td>29.8</td> <td>26.6</td> <td>23.5</td> <td>20.5</td> </tr> </table>	Age(yrs)	20	25	30	35	40	Expectation of life	33	29.8	26.6	23.5	20.5														
Age(yrs)	20	25	30	35	40																							
Expectation of life	33	29.8	26.6	23.5	20.5																							
4	14.a.	Distinguish between seasonal variation and cyclic variation and secular trend.	K4	CO4																								
		(OR)																										
	14.b.	Assuming a four – yearly cyclic , calculate the trend by the method of moving average from the following data relating to the production of tea in India.																										
		<table border="1"> <tr> <td>Year</td> <td>1998</td> <td>1999</td> <td>2000</td> <td>2001</td> <td>2002</td> </tr> <tr> <td>Production (in million lbs)</td> <td>464</td> <td>515</td> <td>518</td> <td>467</td> <td>502</td> </tr> <tr> <td>Year</td> <td>2003</td> <td>2004</td> <td>2005</td> <td>2006</td> <td>2007</td> </tr> <tr> <td>Production (in million lbs)</td> <td>540</td> <td>557</td> <td>578</td> <td>586</td> <td>612</td> </tr> </table>	Year	1998	1999	2000	2001	2002	Production (in million lbs)	464	515	518	467	502	Year	2003	2004	2005	2006	2007	Production (in million lbs)	540	557	578	586	612		
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5	15.a.	Explain the computation procedure to finding descriptive statistics.	K2	CO5																								
		(OR)																										
	15.b.	Explain the computation procedure to finding regression.																										

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	The mean and standard deviation of 200 items are found to be 60 and 20 respectively. If at the time of calculation, two items were wrongly taken as 3 and 67 instead of 13 and 17, find the correct mean and standard deviation. What is the correct coefficient of variation?	K3	CO1																
2	17	Calculate the coefficient of correlation and obtain the lines of regression for the following data. <table border="1"> <tr> <td>X</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>y</td> <td>9</td> <td>8</td> <td>10</td> <td>12</td> <td>11</td> <td>13</td> <td>14</td> </tr> </table> Obtain the estimate Y which should be correspond to the average $X = 6.2$.	X	1	2	3	4	5	6	7	y	9	8	10	12	11	13	14	K3	CO2
X	1	2	3	4	5	6	7													
y	9	8	10	12	11	13	14													
3	18	Interpolate the production for 2003 from the data given below <table border="1"> <tr> <td>Year</td> <td>2000</td> <td>2002</td> <td>2004</td> <td>2006</td> </tr> <tr> <td>Production('000)</td> <td>100</td> <td>112</td> <td>136</td> <td>180</td> </tr> </table>	Year	2000	2002	2004	2006	Production('000)	100	112	136	180	K4	CO3						
Year	2000	2002	2004	2006																
Production('000)	100	112	136	180																
4	19	Fit a straight line trend by the method of least square to the following data, relating to the net profits of a public concern. <table border="1"> <tr> <td>Year</td> <td>2001</td> <td>2002</td> <td>2003</td> <td>2004</td> <td>2005</td> <td>2006</td> <td>2007</td> </tr> <tr> <td>Profit (Rs)</td> <td>300</td> <td>700</td> <td>600</td> <td>800</td> <td>900</td> <td>700</td> <td>1000</td> </tr> </table>	Year	2001	2002	2003	2004	2005	2006	2007	Profit (Rs)	300	700	600	800	900	700	1000	K4	CO4
Year	2001	2002	2003	2004	2005	2006	2007													
Profit (Rs)	300	700	600	800	900	700	1000													
5	20	Explain the date analysis toolpak of Correlation, and Moving Average method.	K2	CO5																

Z-Z-Z

END