

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2026
(Fourth Semester)

Branch -COMPUTER SCIENCE WITH DATA ANALYTICS

APPLIED STATISTICS

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	Simple random sampling is very effective if (i) The population is not very large (ii) The population is not heterogenous (iii) The population is parttioned in to several sections (iv) Both (i) and (ii)	K1	CO1
	2	A strata is a --- (i) Non homogenous subgroup of a population (ii) Sample of the population (iii) Homogenous sub group of population (iv) None of the above	K2	CO1
2	3	Which of the following method enables us to predict the future trend value using a linear equation? (i) Least squares (ii) Moving averages (iii) Graphical method (iv) Simple averages	K1	CO2
	4	Which of the following method assumes that the data has no trend? (i) Least squares (ii) Moving averages (ii) Graphical method (iv) Simple averages	K2	CO2
3	5	The Index number in which base year quantities are used as weights is ----- (i) Laspeyer' price index number (ii) Laspeyer's Quantitiy index number (iii) Paasche's Price Index number (iv) Paasche's Quantity index number	K1	CO2
	6	In aggregate expenditure method, which of the following formula is used to compute Cost of Living Index number? (i) Laspeyers Index Number (ii) Paasche's Index number (iii) Fisher's Index number (iv) Kelly's Index number	K2	CO2
4	7	To test whether the process is in control with respect the diameters of the bolts produced, which of the following charts will be appropriate? (i) Xbar Chart (ii) p-Chart (iii) d-Chart (iv) c-Chart	K1	CO1
	8	Which of the following are used as control limits in p-chart? (i) 1σ limits (ii) 2σ limits (iii) 3σ limits (iv) Warning limits	K2	CO1
5	9	Which of the following Excel functions is used to find the Range? (i) Range() (ii) Max()-Min() (iii) Max()+Min() (iv) Maxmin()	K1	CO3
	10	The intercept value of the regression equation is found using (i) INTERCEPT(y,x) (ii) INTERCEPT(y) (iii) INTERCEPT(x,y) (iv) INTERCEPT(x)	K2	CO3

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.	Explain the limitations of sampling.	K2	CO1
		(OR)		

Cont...

	11.b.	Compare sampling and Complete census methods.																																			
2	12.a.	Explain the method of least squares and write its advantages over the method of moving averages.										K2	CO2																								
	(OR)																																				
	12.b.	Compute the three yearly moving averages. <table><tr><td>Year</td><td>2000</td><td>2001</td><td>2002</td><td>2003</td><td>2004</td><td>2005</td><td>2006</td><td>2007</td><td>2008</td><td>2009</td></tr><tr><td>Price</td><td>464</td><td>515</td><td>518</td><td>467</td><td>502</td><td>540</td><td>557</td><td>571</td><td>586</td><td>612</td></tr></table>												Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Price	464	515	518	467	502	540	557	571	586	612		
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009																											
Price	464	515	518	467	502	540	557	571	586	612																											
3	13.a.	Compute the cost of living index number. <table><tr><td>Items</td><td colspan="2">Food</td><td>Fuel</td><td colspan="2">Clothing</td><td>Rent</td><td>Others</td></tr><tr><td>Index number</td><td colspan="2">180</td><td>120</td><td colspan="2">112.5</td><td>200</td><td>125</td></tr><tr><td>Weights</td><td colspan="2">50</td><td>9</td><td colspan="2">6</td><td>15</td><td>20</td></tr></table>										Items	Food		Fuel	Clothing		Rent	Others	Index number	180		120	112.5		200	125	Weights	50		9	6		15	20	K3	CO2
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(OR)																																					
13.b.	Compute the simple Geometric mean of price relatives. <table><tr><td>Commodities</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td></tr><tr><td>Price in 1994</td><td>120</td><td>250</td><td>100</td><td>50</td><td>60</td></tr><tr><td>rice in 1995</td><td>150</td><td>200</td><td>120</td><td>100</td><td>150</td></tr></table>										Commodities	A	B	C	D	E	Price in 1994	120	250	100	50	60	rice in 1995	150	200	120	100	150									
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4	14.a.	Explain Specification limits, Tolerance limits, Warning limits and Control limits.										K4	CO1																								
	(OR)																																				
	14.b.	Explain the advantages of SQC.																																			
5	15.a.	Explain the procedure for computing descriptive statistics using excel package.										K4	CO3																								
	(OR)																																				
	15.b.	Explain the procedure for performing t-test in 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	Explain the probability sampling method with example.	K4	CO1																									
2	17	Analyze the data using seasonal indices by the method of simple averages. <table><tr><td>Year</td><td>IQ</td><td>IIQ</td><td>IIIQ</td><td>IVQ</td></tr><tr><td>2001</td><td>83</td><td>120</td><td>65</td><td>90</td></tr><tr><td>2002</td><td>86</td><td>130</td><td>66</td><td>92</td></tr><tr><td>2003</td><td>89</td><td>128</td><td>68</td><td>93</td></tr><tr><td>2004</td><td>90</td><td>126</td><td>70</td><td>95</td></tr></table>	Year	IQ	IIQ	IIIQ	IVQ	2001	83	120	65	90	2002	86	130	66	92	2003	89	128	68	93	2004	90	126	70	95	K4	CO2
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2001	83	120	65	90																									
2002	86	130	66	92																									
2003	89	128	68	93																									
2004	90	126	70	95																									
3	18	Construct Laspeyers, Paasche's and Fishers Price Index numbers. <table><tr><td>Item</td><td>Base year Price</td><td>Current Year Price</td><td>Base year quantity</td><td>Current year quantity</td></tr><tr><td>A</td><td>6</td><td>10</td><td>50</td><td>50</td></tr><tr><td>B</td><td>2</td><td>2</td><td>100</td><td>120</td></tr><tr><td>C</td><td>4</td><td>6</td><td>60</td><td>60</td></tr><tr><td>D</td><td>10</td><td>12</td><td>30</td><td>25</td></tr></table>	Item	Base year Price	Current Year Price	Base year quantity	Current year quantity	A	6	10	50	50	B	2	2	100	120	C	4	6	60	60	D	10	12	30	25	K4	C23
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B	2	2	100	120																									
C	4	6	60	60																									
D	10	12	30	25																									
4	19	The following data gives the results of inspection of 100 items per day for 10 days. Construct a d-chart and interpret the chart. <table><tr><td>DAY</td><td>1</td><td>2</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>No. of defectives</td><td>6</td><td>8</td><td>5</td><td>4</td><td>4</td><td>3</td><td>2</td><td>4</td><td>2</td><td>2</td></tr></table>	DAY	1	2	3	4	5	6	7	8	9	10	No. of defectives	6	8	5	4	4	3	2	4	2	2	K4	CO2			
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No. of defectives	6	8	5	4	4	3	2	4	2	2																			
5	20	Explain the procedure of calculating correlation and regression by data toolpak.	K4	CO3																									

Z-Z-Z END