

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION MAY 2026
(First Semester)**

Branch - **STATISTICS**

DESCRIPTIVE 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	Data collected for the first time by the investigator is called (a) Secondary data (b) Primary data (c) Qualitative data (d) Derived data	K1	CO1
	2	A systematic arrangement of data in rows and columns is known as (a) Diagram (b) Graph (c) Table (d) Frequency polygon	K2	CO1
2	3	The most frequently occurring value in a dataset is called (a) Median (b) Mode (c) Mean (d) Range	K1	CO1
	4	If the range of a dataset is 40 and the minimum value is 10, then the maximum value is (a) 30 (b) 40 (c) 50 (d) 60	K2	CO1
3	5	The first central moment of a distribution is always equal to (a) mean (b) Zero (c) variance (d) median	K1	CO2
	6	If the mean, median, and mode of a distribution are equal, the distribution is (a) positively skewed (b) symmetrical (c) negatively skewed (d) leptokurtic	K2	CO2
4	7	If two variables move in the same direction, the correlation is (a) Negative (b) Zero (c) Positive (d) None of these	K1	CO3
	8	In regression analysis, the variable we predict is called (a) Independent variable (b) Constant (c) Dependent variable (d) Coefficient	K2	CO3
5	9	The equation $Y = a e^{bx}$ represents a (a) linear curve (b) Parabolic curve (c) Exponential curve (d) Power curve	K1	CO4
	10	Which of the following Excel functions is used to find the arithmetic mean of a given set of numbers? (a) =MEAN() (b) =AVERAGE() (c) =MEDIAN() (d) =MODE()	K2	CO4

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 components of a table						K2	CO1
	(OR)								
	11.b.	A firm reported that its net worth in the years 2011 – 2016 are as follows:							
		Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016		
		Net Worth (Rs. in lakhs)	100	112	120	133	117		
Draw the histogram and frequency polygon.									

Cont...

2	12.a.	The following is the distribution of persons according to different income groups. Find the average income of the persons.						K3	CO1															
	<table><tr><td>Income (in Rs. 1000)</td><td>0-8</td><td>8-16</td><td>16-24</td><td>24-32</td><td>32-40</td><td>40-48</td></tr><tr><td>No. of persons</td><td>8</td><td>7</td><td>16</td><td>24</td><td>15</td><td>7</td></tr></table>						Income (in Rs. 1000)			0-8	8-16	16-24	24-32	32-40	40-48	No. of persons	8	7	16	24	15	7		
	Income (in Rs. 1000)	0-8	8-16	16-24	24-32	32-40	40-48																	
	No. of persons	8	7	16	24	15	7																	
(OR)																								
12.b.	Find the standard deviation for the number of days patients admitted in a hospital.																							
	<table><tr><td>Days of confinement</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>No. of patients</td><td>18</td><td>14</td><td>9</td><td>3</td><td>1</td></tr></table>						Days of confinement	5	6	7	8	9	No. of patients	18	14	9	3	1						
Days of confinement	5	6	7	8	9																			
No. of patients	18	14	9	3	1																			
3	13.a.	If it is given that $\sum fx = -100$, $\sum fx^2 = 400$, $\sum fx^3 = -1000$, $\sum fx^4 = 5000$ and $N = 10$, find the first four central moments.						K3	CO2															
	(OR)																							
	13.b.	The first four moments of a distribution about $X = 2$ are -2,12,-20 and 100. Calculate the moment about mean. Also calculate β_2 and show whether the distribution is leptokurtic or platykurtic.																						
4	14.a.	The following are the marks scored by 7 students in two tests in a subject. Calculate coefficient of correlation						K4	CO3															
	<table><tr><td>Marks in test 1</td><td>12</td><td>9</td><td>8</td><td>10</td><td>11</td><td>13</td><td>7</td></tr><tr><td>Marks in test 2</td><td>14</td><td>8</td><td>6</td><td>9</td><td>11</td><td>12</td><td>3</td></tr></table>						Marks in test 1			12	9	8	10	11	13	7	Marks in test 2	14	8	6	9	11	12	3
	Marks in test 1	12	9	8	10	11	13			7														
	Marks in test 2	14	8	6	9	11	12			3														
(OR)																								
14.b.	Given the following data find the two regression equations. $\bar{x} = 20$, $\bar{y} = 100$, $\sigma_x = 5$, $\sigma_y = 25$, $r = 0.8$.																							
5	15.a.	Explain the steps involved in fitting a curve.						K4	CO4															
	(OR)																							
	15.b.	Write the utility of the following statistical functions in Excel (i) AVERAGE () (ii) CORREL () (iii) SUM () (iv) STDEV () (v) COUNT ()																						

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	What are the general rules to be followed for constructing diagrams?	K3	CO1																																	
2	17	A study of 100 engineering companies gives the following information	K3	CO1																																	
		<table><tr><td>Profit (Rs. in Crore)</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td><td>50-60</td></tr><tr><td>Number of companies</td><td>8</td><td>12</td><td>20</td><td>30</td><td>20</td><td>10</td></tr></table>			Profit (Rs. in Crore)	0-10	10-20	20-30	30-40	40-50	50-60	Number of companies	8	12	20	30	20	10																			
		Profit (Rs. in Crore)			0-10	10-20	20-30	30-40	40-50	50-60																											
Number of companies	8	12	20	30	20	10																															
Calculate the variance and standard deviation.																																					
3	18	Find Karl Pearson's coefficient of skewness for the following distribution and comment on the result:	K4	CO2																																	
		<table><tr><td>Class</td><td>3-7</td><td>8-12</td><td>13-17</td><td>18-22</td><td>23-27</td><td>28-32</td></tr><tr><td>Frequency</td><td>108</td><td>580</td><td>175</td><td>80</td><td>32</td><td>18</td></tr></table>			Class	3-7	8-12	13-17	18-22	23-27	28-32	Frequency	108	580	175	80	32	18																			
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Frequency	108	580	175	80	32	18																															
4	19	Rankings of 10 trainees at the beginning (x) and at the end(y) of a certain course are given below.	K3	CO3																																	
		<table><tr><td>Trainees</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td><td>I</td><td>J</td></tr><tr><td>X</td><td>1</td><td>6</td><td>3</td><td>9</td><td>5</td><td>2</td><td>7</td><td>10</td><td>8</td><td>4</td></tr><tr><td>Y</td><td>6</td><td>8</td><td>3</td><td>7</td><td>2</td><td>1</td><td>5</td><td>9</td><td>4</td><td>10</td></tr></table>			Trainees	A	B	C	D	E	F	G	H	I	J	X	1	6	3	9	5	2	7	10	8	4	Y	6	8	3	7	2	1	5	9	4	10
		Trainees			A	B	C	D	E	F	G	H	I	J																							
X	1	6	3	9	5	2	7	10	8	4																											
Y	6	8	3	7	2	1	5	9	4	10																											
Calculate Rank correlation.																																					
5	20	Describe the application of MS Excel in statistical analysis.	K4	CO4																																	