St. Philomena's College (Autonomous), Mysore

PG Department of Biochemistry

Question Bank {Revised Curriculum (LOCF) - 2020-22 Batch }

Second Year- Third Semester

Course Title (Paper Title): Methods in Research (AESC) QP Code -84351

Sl. No	Unit	Questions	Marks
1	1	Define research and mention any two of its applications.	2
2	1	What are the functions of research?	2
3	1	Write the purpose of research.	2
4	1	Write the meaning of research and mention its significance	2
5	1	What is research? Write their functions.	2
6	1	Define research. Write their characteristics.	2
7	1	Mention the characteristic features of research.	2
8	1	What are the major types of research? Write their significance.	2
9	1	What is applied research? Give example.	2
10	1	What is pure research? Give example.	2
11	1	Differentiate between applied and pure research.	2
12	1	Name the factors which hinder research.	2
13	1	Give examples of categorical data	2
14	1	Write the significance of research.	2
15	1	Enlist any four Criteria of good Research	2
16	1	List the problems encountered by researchers.	2
17	1	What do you mean by Literature review?	2
18	2	What is a histogram? Give its significance	2
19	2	What are the methods by which the data are classified?	2
20	2	List out the types of frequency curves.	2
21	2	Define quantitative and qualitative data.	2
22	2	List out the types of bar chart.	2
23	2	Differentiate between sample and population	2
24	2	What is primary data?	2
25	2	What is secondary data?	2
26	2	Mention any two uses of diagrammatic representation of data.	2
27	2	What are the sources of secondary data?	2
28	2	What do you mean by statistics?	2
29	2	What do you mean by classification of data?	2
30	2	How will you represent data?	2
31	2	How is data classified?	2
32	2	What is histogram?	2
33	2	What are the types of data? Give an example.	2

34	2	Give examples of categorical data	2
35	2	Give examples of qualitative and quantitative data	2
36	3	What are good measures of dispersion?	2
37	3	Define range	2
38	3	State the relation between correlation coefficient and regression coefficient	2
39	3	Comment on: Mean number of galls on oak leaf is 5 and variance is 6.	2
40	3	Define median and range	2
41	3	Define correlation and regression coefficient.	2
42	3	What is correlation coefficient?	2
43	3	Find the median of the following data 1,2,2,5,7,8	2
44	3	What is regression?	2
45	3	What do you understand about standard error?	2
46	3	What is the objective of correlation analysis?	2
47	3	Mention the types of regression line?	2
48	3	Define range and mode	2
49	3	What is arithmetic mean?	2
50	3	Find the median of the following data: 1,2,2,5,7,8	2
51	3	Define arithmetic mean?	2
52	3	Find the range for 89,73,84,91,87,77,94	2
53	3	Write the formula for median	2
54	3	What is standard error?	2
55	3	What are the properties that hold the Karl Pearson's coefficient of correlation?	2
56	3	Define standard error.	2
57	3	Find the median of the following series: 75,60,55,80,45,70,40,85	2
58	3	What is the objective of correlation analysis?	2
59	3	Write the spearman rank correlation coefficient formulae.	2
60	3	What is frequency table?	2
61	3	Mention any two advantages of average.	2
62	3	Write the formulae for mode.	2
63	3	State the types of regression lines.	2
64	3	Give the empirical formula relating mean, median and mode.	2
65	3	Define coefficient of variation.	2
66	3	Give any two applications of Pearson distribution.	2
67	3	What is standard deviation?	2
68	3	What will you call an average obtained arithmetically?	2
69	3	Give the symbols for a) summation of frequencies b) arithmetic mean	2
70	3	Give an expression relating coefficient of correlation coefficients.	2
71	3	Give an expression relating coefficient of regression coefficients	2
72	3	What is correlation?	2
73	3	Find the range for 89,73,84,91,87,77,94	2

74	3	What do you mean by regression?	2
75	3	What is an average?	2
76	3	Mention the merits of median.	2
77	3	Mention the demerits of median.	2
78	3	Interpret positive correlation coefficient with an example.	2
79	3	State any two merits of arithmetic mean.	2
80	3	What is the Median and Mode of the following Data: 3, 7, 4, 6, 10, 8,7,6,7,4,9,3,7	2
81	3	What is range? Calculate the range for the following data: 20.33.41.29.50. 38, 10, 15, 36, 11,24,	2
82	3	What is the relationship between variance and standard deviation?	2
83	3	If data show a normal distribution, what percent of the data will be within mean $\pm$ 1 SD?	2
84	3	Find the Range for the values 26, 25, 35, 27, 29, 29.	2
85	3	What is the Range for the following numbers 14, -12, 7, 0, -5, -8, 17, -11, 19	2
86	3	Mean of a sample was 38.8 and standard deviation was 11.4. What is the coefficient of variation?	2
87	3	What is Standard error? How is it calculated?	2
88	3	Calculate the median of 21, 6, 9, 12, 2,16, 10, 15, 7,18, 5, 23,	2
89	3	Calculate the Mode for 5, 7, 15, 6, 21,7, 18, 10, 15, 13, 15, 16, 7, 9, 15, 10	2
90	4	Expand ANOVA	2
91	4	State the basic assumptions in ANOVA.	2
92	4	Define probability.	2
93	4	What is probability mass function of binomial distribution?	2
94	4	List out the names of continuous distribution.	2
95	4	What is conditional probability?	2
96	4	Expand SPSS.	2
97	4	Enlist the properties of probability.	2
98	4	Write down the properties of probability.	2
99	4	What is probability density function of poison distribution?	2
100	4	What is probability density function of Binomial distribution?	2
101	4	What is probability?	2
102	4	Toss a coin for 12 times. What is the probability of getting exactly 7 heads?	2
103	4	Define conditional probability	2
104	4	Give the application of ANOVA technique.	2
105	4	When will you apply ANOVA technique?	2
106	4	What is th probability mass function of poison distribution?	2
107	4	What is ANOVA? When is it used?	2
108	4	Differentiate between one way and two way ANOVA.	2
1	1	Write the meaning, purpose and functions of research	5

2	1	Give a note on functions and characters of research	5
3	1	Write the purpose and applications of research	5
4	1	Mention the characteristic features and major types of research	5
5	1	Explain the major types of research and their significance	5
6	1	What are the functions of research? Differentiate the major types of research in science.	5
7	1	Differentiate the major types of research with their significance and example	5
8	1	Mention the significance of research. Write a note on the factors which hinder research.	5
9	1	Explain the role of biostatistics in modern research.	5
10	1	Give the application of biostatistics in modern research.	5
11	1	What are the functions of research? Differentiate the major types of research in science.	5
12	2	Define the following terms a) mean b)nominal data c) ratio d) central tendency e) variance	5
13	2	List out the types of frequency curves.	5
14	2	List the different types of variables.	5
15	2	Write an essay on theoretical frequency distribution.	5
16	2	Explain bar and multiple bar charts with suitable biological data.	5
17	2	Describe in brief the methods of drawing pie diagram with an example.	5
18	2	Differentiate between histogram, pie chart & bar chart	5
19	2	Explain histogram and pie chart in detail.	5
20	2	Explain pie charts with suitable example	5
21	2	Explain the significance of diagrams and graphs in the presentation of data.	5
22	2	Give an account on graphical representation of data.	5
23	2	How to draw a pie chart? Explain with a an example	5
24	2	What are the different methods of presentation of data?	5
25	2	What do you mean by pie diagram? Draw and explain	5
26	2	What is a histogram? How it is drawn?	5
27	2	Write an essay on diagrammatic representation of data	5
28	2	Give an account on Classification and tabulation of data.	5
29	2	Comment on tabulation of statistical data.	5
30	2	Describe any two methods of data collection.	5
31	2	Describe in brief the purpose and importance of classification of data.	5
32	2	Differentiate between primary and secondary data with suitable examples.	5
33	2	Discuss the methods of collection of data	5
34	2	Describe in brief the methods of classification of data.	5
35	2	Explain different methods of data classification.	5
36	2	Explain the nature and scope of statistical methods and their limitations.	5
37	2	Give an account of collection of data	5
38	2	What is census? Explain in detail	5

39	2	Write note on classification of data.	5
40	2	Explain different methods of data collection.	5
41	2	Explain the advantages of sampling over census.	5
42	2	Give an account of source of errors in sample surveys and the methods of controlling the same.	5
43	2	Differentiate between Primary and secondary data. What are the sources of secondary data?	5
44	2	What is the difference between Histogram and Bar diagram? Explain	5
45	2	What is Normal distribution curve? What are its properties?	5
46	3	Calculate the modal value if the yield (tonnes/ha) of paddy from different fields are 6.7, 6.0, 4.9, 6.0, 5.8, 6.2, 6.0, 6.3, 4.8, 6.0, 5.7	5
47	3	Define range, mean, mode and standard deviation.	5
48	3	Define standard error and bring out its utility.	5
49	3	explain the following terms a) frequency b) cumulative frequency	5
50	3	Explain the merits and demerits of median.	5
51	3	Find the mean of the following data: 16, 18, 19, 21, 23, 23, 27, 29, 29, 35	5
52	3	Find the mean of the following data: 9, 7, 11, 13, 2, 4, 5	5
53	3	Find the mode of the following data: 0, 3, 2, 1, 3, 5, 4, 3, 42, 1, 2, 0	5
54	3	Find the mode of the following data: 1, 7, 2, 4, 5, 9, 8, 3	5
55	3	Find the mode of the following data: 12, 8, 4, 8, 1, 8, 9, 11, 9, 10, 12, 8	5
56	3	Find the mode of the following data: 15, 22, 17, 19, 22, 17, 29, 24, 17, 15	5
57	3	Give an account on measures of central tendency.	5
58	3	Give an account on standard error Vs standard deviation	5
59	3	Give the relation between mean, median and mode. Enlist the merit and demerits mode and median.	5
60	3	The mean of 8, 11, 6, 14, x and 13 is 66. Find the value of the observation x.	5
61	3	What are good measures of dispersion? Explain	5
62	3	What are the advantages and disadvantages of mode? Explain.	5
63	3	What are the various types of measure of dispersion?	5
64	3	Write briefly on applications of standard deviation	5
65	3	Write briefly on concepts of standard deviation	5
66	3	Write short note on scatter diagram.	5
67	3	Explain in detail rank test.	5
68	3	Explain the concept of regression. State the equations of two regression lines	5
69	3	Explain the term 'regression' and point out why do we have generally two regression lines?	5
70	3	What are the merits and demerits of rank correlation? Explain	5
71	3	What do you mean by correlation? Distinguish between positive, negative and zero correlation?	5
72	3	What is correlation? Explain its different types with illustrations.	5
73	3	Write a short note on regression coefficient.	5

74	3	Write briefly on regression	5
75	3	Write short note on correlation coefficient	5
76	3	For the following numbers find Q1, Q3 and median 12, 2, 15, 6, 7, 19, 1, 5, 18, 9, 27.	5
77	3	What are the measures of central tendency? Explain	5
78	3	For the following numbers calculate the 50^{th} percentile 2,3,5,6,8,10,12,15,18,20	5
79	3	Calculate Mean and SD of 2, 5, 3, 6, 4.	5
80	3	Draw a scatter diagram which shows correlation coefficient of -1 and zero	5
81	3	For the following numbers calculate the 50^{th} percentile 12,13,15,16,18,20,22,25,28,30	5
82	3	Calculate mean and standard deviation for the following data: 21, 6, 9, 12, 2,16, 10, 15, 7,18, 5, 23	5
83	3	Calculate Mean and SD of 3, 6, 7, 6, 4	5
84	4	Define ANOVA. Discuss the major assumptions of ANOVA.	5
85	4	Define normal distribution. Write down the characteristics of normal distribution.	5
86	4	Discuss the properties of normal distribution curve.	5
87	4	Explain ANOVA.	5
88	4	Explain one way ANOVA with an example.	5
89	4	Explain binomial distribution.	5
90	4	Explain in detail about probability theory and their distribution	5
91	4	Explain level of significance and degrees of freedom.	5
92	4	Explain mathematical and classical definitions of probability	5
93	4	Explain one-way ANOVA	5
94	4	Explain probability	5
95	4	Explain probability with suitable example.	5
96	4	Explain the ANOVA for one-way classification	5
97	4	Explain the general format of ANOVA table.	5
98	4	Give an account on binomial distribution	5
99	4	State the probability distribution of poison distribution. Also state its properties.	5
100	4	Toss a coin for 12 times. What is the probability of getting exactly 7 heads?	5
101	4	What are the problems for which the tests of significance are used?	5
102	4	What are the various steps in tests of significance includes?	5
103	4	What do you mean by test of significance and testing of hypothesis?	5
104	4	What do you understand by probability? Describe in brief the additional rule of probability and multiplication rule of probability?	5
105	4	What is conditional probability? Explain	5
106	4	When do we use ANOVA one-way testes and what are the assumptions?	5
107	4	Where Analysis of Variance (ANOVA) is used? Explain with suitable	5

<table>
<tr><td></td><td></td><td>example.</td><td></td></tr>
<tr><td>108</td><td>4</td><td>Write a note on binomial distribution and its application</td><td>5</td></tr>
<tr><td>109</td><td>4</td><td>Write an account on ANOVA</td><td>5</td></tr>
<tr><td>110</td><td>4</td><td>Write down the important properties of normal distribution.</td><td>5</td></tr>
<tr><td>111</td><td>4</td><td>Write short note on different types of ANOVA.</td><td>5</td></tr>
<tr><td>112</td><td>4</td><td>Write short note on normal distribution.</td><td>5</td></tr>
<tr><td>113</td><td>4</td><td>Write short note on one way ANOVA</td><td>5</td></tr>
<tr><td>114</td><td>4</td><td>Write short note on two way ANOVA</td><td>5</td></tr>
<tr><td>115</td><td>4</td><td>What is normal distribution? What are the properties of normal distribution curve?</td><td>5</td></tr>
<tr><td>116</td><td>4</td><td>What are degrees of freedom? What is the degrees of freedom when n=7</td><td>5</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>1</td><td>Explain in detail the salient features, function, application and purpose of research</td><td>10</td></tr>
<tr><td>2</td><td>1</td><td>Give a detailed account on the major types of research and their significance</td><td>10</td></tr>
<tr><td>3</td><td>1</td><td>Explain the significance of research. Write a note on the factors which hinders research</td><td>10</td></tr>
<tr><td>4</td><td>1</td><td>Explain the characteristic features and methods involved in research?</td><td>10</td></tr>
<tr><td>5</td><td>1</td><td>Explain the characteristic features and methods involved in research?</td><td>10</td></tr>
<tr><td>6</td><td>2</td><td>Explain different methods of data collection.</td><td>10</td></tr>
<tr><td>7</td><td>2</td><td>Discuss the methods of collection of data</td><td>10</td></tr>
<tr><td>8</td><td>2</td><td>Explain the different graphical methods to represent data.</td><td>10</td></tr>
<tr><td>9</td><td>2</td><td>What are the different methods of presentation of data? Explain in detail</td><td>10</td></tr>
<tr><td>10</td><td>2</td><td>Write a note on Box and Whisker plot.</td><td>10</td></tr>
<tr><td>11</td><td>3</td><td>In an experiment observed that the number of women of age 40-44 years in different categories of waist hip ratio(WHR) recorded in the following table: Frequency distribution of WHR which recorded in 60 women of age 40-44 years. For those construct a) Frequency curve b) less than and more than cumulative frequency curve
<table>
<tr><td>WHR</td><td>0.70-0.80</td><td>0.80-0.90</td><td>0.90-1.00</td><td>1.00-1.10</td><td>1.10-1.20</td></tr>
<tr><td>No of women</td><td>5</td><td>13</td><td>22</td><td>10</td><td>7</td></tr>
</table></td><td>10</td></tr>
<tr><td>12</td><td>3</td><td>Explain the measures of dispersion with merits and demerits.</td><td>10</td></tr>
<tr><td>13</td><td>3</td><td>Describe various levels of/scales of measurements.</td><td>10</td></tr>
<tr><td>14</td><td>3</td><td>How is correlation applied to find the intensity of relationship between two or more variables?</td><td>10</td></tr>
<tr><td>15</td><td>3</td><td>For the following numbers find Q1, Q3, mean and median 12, 2, 15, 6, 7, 19, 1, 5, 18, 9, 27.</td><td>10</td></tr>
<tr><td>16</td><td>3</td><td>Calculate the mean, median and standard deviation for the data relating of soil sample. pH of soil sample: 6.7, 6.8, 6.9, 6.9, 7.0, 7.3, 7.3, 7.4, 7.4 , 7.5</td><td>10</td></tr>
</table>

<table>
<tr><td>17</td><td>3</td><td>The incubation period of small pox recorded on 10 patients is Given below. Calculate the variance and coefficient of variance. Incubation period: 10, 24, 13, 11,15,10,9,12,10, 16</td><td>10</td></tr>
<tr><td>18</td><td>3</td><td>Find mean, median , Mode of the data : 36,28,11,5,41,86,3 & 8</td><td>10</td></tr>
<tr><td>19</td><td>3</td><td>Obain the spearman’s rank correlation coefficient for the following data:
<table>
<tr><td>X</td><td>48</td><td>33</td><td>40</td><td>9</td><td>16</td><td>16</td><td>65</td><td>24</td><td>16</td><td>57</td></tr>
<tr><td>Y</td><td>13</td><td>13</td><td>24</td><td>6</td><td>15</td><td>5</td><td>20</td><td>9</td><td>6</td><td>19</td></tr>
</table></td><td>10</td></tr>
<tr><td>20</td><td>3</td><td>A student carried out an instrumental estimation and plotted concentration Vs instrument response. Calculate the Pearson’s correlation coefficient
<table>
<tr><td>Concentration (mM)</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td></tr>
<tr><td>Instrument response (mV)</td><td>5</td><td>11</td><td>15</td><td>21</td><td>26</td></tr>
</table></td><td>10</td></tr>
<tr><td>21</td><td>3</td><td>The IA marks and Exam marks of a student in six papers is given below. Using the Spearman’s Rank Correlation, find out whether the students’ IA marks and Exam marks correlate.
<table>
<tr><td>Paper</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>IA marks</td><td>70</td><td>64</td><td>60</td><td>65</td><td>50</td><td>55</td></tr>
<tr><td>Exam Marks</td><td>75</td><td>65</td><td>70</td><td>80</td><td>60</td><td>69</td></tr>
</table></td><td>10</td></tr>
<tr><td>22</td><td>3</td><td>A survey of 128 smokers revealed the following frequency distribution of their daily expenditure on smoking. Find the mean, median and mode for the following data:
<table>
<tr><td>Expenditure</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td><td>50-60</td><td>60-70</td><td>70-80</td></tr>
<tr><td>No of smokers</td><td>23</td><td>44</td><td>35</td><td>12</td><td>9</td><td>3</td><td>2</td></tr>
</table></td><td>10</td></tr>
<tr><td>23</td><td>3</td><td>The daily wages of 50 employees in an organization are Given below. Find the mean daily wages:
<table>
<tr><td>Daily wages</td><td>100-150</td><td>150-200</td><td>200-250</td><td>250-300</td><td>300-350</td></tr>
<tr><td>No. of workers</td><td>12</td><td>13</td><td>17</td><td>8</td><td>15</td></tr>
</table></td><td>10</td></tr>
<tr><td>24</td><td>3</td><td>Find mean , median and mode for the following data of tomatoes in 100 tomato plants
<table>
<tr><td>No. of tomatoes per plant</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></tr>
<tr><td>no of plant</td><td>5</td><td>7</td><td>10</td><td>17</td><td>22</td><td>15</td><td>10</td><td>86</td></tr>
</table></td><td>10</td></tr>
</table>

<table>
<tr><td>25</td><td>3</td><td>The table shows the number of colonies of known microorganisms grown on ten plates. Calculate the arithmetic mean, median and std deviation.
<table>
<tr><td>Plate No</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 colonies</td><td>75</td><td>95</td><td>60</td><td>80</td><td>95</td><td>110</td><td>115</td><td>130</td><td>140</td><td>160</td></tr>
</table></td><td>10</td></tr>
<tr><td>26</td><td>3</td><td>A survey of public health department reported that the following data. compute the a) arithmetic mean b) median c) mode
<table>
<tr><td>No of children</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>no of families</td><td>1</td><td>50</td><td>72</td><td>50</td><td>28</td><td>12</td><td>83</td></tr>
</table></td><td>10</td></tr>
<tr><td>27</td><td>3</td><td>Calculate the arithmetic mean, mode and std deviation from the following data:
<table>
<tr><td>blood urea (mg/dl)</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td></tr>
<tr><td>no of patients</td><td>8</td><td>12</td><td>20</td><td>10</td><td>6</td><td>4</td></tr>
</table></td><td>10</td></tr>
<tr><td>28</td><td>3</td><td>Calculate the median and mode of the data. Find the median, arithmetic mean & mode of given below information.
<table>
<tr><td>No of petriplate</td><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td></tr>
<tr><td>No of organism observed</td><td>8</td><td>23</td><td>45</td><td>65</td><td>75</td><td>80</td></tr>
</table></td><td>10</td></tr>
<tr><td>29</td><td>3</td><td>Calculate the mean, median, mode for the following data
<table>
<tr><td>Rupees</td><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td></tr>
<tr><td>Frequency</td><td>15</td><td>35</td><td>64</td><td>84</td><td>96</td><td>120</td><td>192</td><td>256</td></tr>
</table></td><td>10</td></tr>
<tr><td>30</td><td>3</td><td>The following data represents the internal test of biostatistics marks, so find the a)Average b)Median c) Mode marks
<table>
<tr><td>Marks in biostatistics</td><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td></tr>
<tr><td>No of students</td><td>3</td><td>12</td><td>26</td><td>36</td><td>40</td></tr>
</table></td><td>10</td></tr>
<tr><td>31</td><td>3</td><td>From the following data of the marks obtained by 60 students of a class. Calculate the Range, Average, mean and mode.
<table>
<tr><td>marks</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td></tr>
<tr><td>No of students</td><td>8</td><td>12</td><td>20</td><td>10</td><td>6</td><td>4</td></tr>
</table></td><td>10</td></tr>
<tr><td>32</td><td>3</td><td>Find the mean, median value and std deviation from the following data:
<table>
<tr><td>X</td><td>1</td><td>3</td><td>5</td><td>6</td><td>8</td></tr>
<tr><td>f</td><td>7</td><td>9</td><td>20</td><td>4</td><td>2</td></tr>
</table></td><td>10</td></tr>
</table>

<table>
<tr><td>33</td><td>3</td><td>Calculate Coefficient of Variation and std deviation from the data of yield of 80 mango trees in an orchard.
<table>
<tr><td>yield of trees(kg)</td><td>below 20</td><td>below 40</td><td>below 60</td><td>below 80</td><td>below 100</td></tr>
<tr><td>No. of trees</td><td>8</td><td>20</td><td>50</td><td>70</td><td>80</td></tr>
</table></td><td>10</td></tr>
<tr><td>34</td><td>3</td><td>Find the missing frequency, median and mode for the following distribution if the mean is 12.9
<table>
<tr><td>Class Interval</td><td>0-5</td><td>5-10</td><td>10-15</td><td>15-20</td><td>20-25</td></tr>
<tr><td>Frequency</td><td>3</td><td>?</td><td>8</td><td>5</td><td>4</td></tr>
</table></td><td>10</td></tr>
<tr><td>35</td><td>3</td><td>Distribution of a certain disease reported during the year of 2015 in Karnataka state as shown below: Calculate : a) Median b) Mode c) Range
<table>
<tr><td>Age</td><td>5-14</td><td>15-24</td><td>25-29</td><td>30-34</td><td>35-39</td></tr>
<tr><td>No. of cases</td><td>3</td><td>10</td><td>12</td><td>8</td><td>7</td></tr>
</table></td><td>10</td></tr>
<tr><td>36</td><td>3</td><td>Data on time since transplantation in years for 50 female subjects is given in the following table: calculate a) Frequency b) coefficient of variation
<table>
<tr><td>year (X)</td><td>4-6</td><td>6-8</td><td>8-10</td><td>10-12</td><td>12-14</td><td>14-16</td></tr>
<tr><td>No of female (f)</td><td>3</td><td>6</td><td>16</td><td>14</td><td>7</td><td>4</td></tr>
</table></td><td>10</td></tr>
<tr><td>37</td><td>3</td><td>In order to compare the effectiveness of two sunburn lotions, a random sample of seven subjects is selected. Lotion A is applied to the left side of their faces an lotion B to the right side. After the subjects have sat in the sun watching a three –hour tennis match, the degree of sunburn is measured on a scale. Apply signed rank test; determine whether the data support the claim that the two lotions are equally effective.
<table>
<tr><td>subject</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>lotion A</td><td>48</td><td>62</td><td>42</td><td>69</td><td>74</td><td>35</td><td>84</td></tr>
<tr><td>lotion B</td><td>46</td><td>49</td><td>48</td><td>63</td><td>43</td><td>32</td><td>53</td></tr>
</table></td><td>10</td></tr>
<tr><td>38</td><td>4</td><td>Explain the applications of normal distribution with suitable example. Name its properties.</td><td>10</td></tr>
<tr><td>39</td><td>4</td><td>Explain the applications of binomial distribution with suitable example. Name its properties</td><td>10</td></tr>
<tr><td>40</td><td>4</td><td>Explain the applications of poison distribution with suitable example. Name its properties</td><td>10</td></tr>
<tr><td>41</td><td>4</td><td>Write an account on ANOVA.</td><td>10</td></tr>
<tr><td>42</td><td>4</td><td>Give an account on SPSS and ANOVA.</td><td>10</td></tr>
</table>

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Model Question Paper

St. Philomena's College (Autonomous), Mysore

III Semester M.Sc-Final Examination

Subject: Biochemistry

Title: Methods in Research (AESC)

Time: 3 Hours **Max Marks: 70**

PART-A

Answer any TEN of the following: **10x2=20**

1.		Define research and mention any two of its applications.	**2**
2.		Name the factors which hinder research.	**2**
3.		What do you mean by Literature review?	**2**
4.		What are the sources of secondary data?	**2**
5.		What are good measures of dispersion?	**2**
6.		Define median and range.	**2**
7.		Find the median of the following series: 75,60,55,80,45,70,40,85	**2**
8.		Give any two applications of Pearson distribution.	**2**
9.		State any two merits of arithmetic mean.	**2**
10.		Define probability.	**2**
11.		What is conditional probability?	**2**
12.		Toss a coin for 12 times. What is the probability of getting exactly 7 heads?	**2**

PART-B

Answer any SIX questions: **6x5=30**

13.		Explain the major types of research and their significance	**5**
14.		What are the functions of research? Differentiate the major types of research in science.	**5**
15.		Explain the following terms a) nominal data b) central tendency c) variance	**5**
16.		Give an account on Classification and tabulation of data.	**5**
17.		Find the mean of the following data: 16, 18, 19, 21, 23, 23, 27, 29, 29, 35	**5**
18.		Give an account on standard error Vs standard deviation	**5**
19.		Define normal distribution. Write down the characteristics of normal distribution.	**5**
20.		Explain level of significance and degrees of freedom	**5**

PART-C

Answer any TWO questions: **2x10=20**

21.		The IA marks and Exam marks of a student in six papers is given below. Using the Spearman's Rank Correlation, find out whether the students' IA marks and Exam marks correlate.	**10**

Paper	1	2	3	4	5	6
IA marks	70	64	60	65	50	55
Exam Marks	75	65	70	80	60	69

22.		Explain the different graphical methods to represent data.	**10**
23.		Give an account on SPSS and ANOVA	**10**

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