

Name:

Enrolment No:



UPES

End Semester Examination, December 2023

Course: Research Methodology and Biostatistics

Semester : 1

Program: M.Sc. Nutrition and Dietetics / Microbiology

Duration : 3 Hours

Course Code: HSCC7005

Max. Marks: 100

Instructions: All questions are compulsory.

S. No.	Section A	Marks	COs
	Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)		
Q 1	Citescore of a journal is calculated over: a. 5 year window b. 3 year window c. 1 year window d. 2 year window	1.5	CO1
Q 2	The allowed level of maximum plagiarism percentage for a scientific writing is: a. 20% b. 25% c. 14% d. 10%	1.5	CO1
Q 3	Which of the following is a reference citation managing software? a. Mendeley b. Endnote c. Refworks d. All of the above	1.5	CO1
Q 4	Which one of the following is a journal-level metric? a. G-index b. H-index c. Citescore d. i-10 index	1.5	CO1
Q 5	Which of the following is a primary source of literature review? a. Review articles b. Research articles c. Books d. None of the above	1.5	CO1
Q 6	State the relation between mean, median and mode.	1.5	CO2
Q 7	_____ Divides the data into two equal parts.	1.5	CO2

	<ul style="list-style-type: none"> a. Median b. Quartiles c. Mean d. Decile 		
Q 8	If mode of a grouped data is 21 and mean is 16, then find it's median.	1.5	CO2
Q 9	For determination of mode and median graphically, one considers: <ul style="list-style-type: none"> a. Bar Diagram and Ogive b. Bar diagram and line diagram c. Histogram and line diagram d. Histogram and Ogive 	; 1.5	CO2
Q 10	The correlation for the values of two variables moving in the opposite direction is: <ul style="list-style-type: none"> a. Perfect positive b. Negative c. Positive d. No correlation 	1.5	CO3
Q 11	Which of the following techniques is an analysis of the relationship between two variables to help provide the prediction mechanism? <ul style="list-style-type: none"> a. Standard error b. Correlation c. Regression d. None of the above 	1.5	CO3
Q 12	Calculate the coefficient of correlation, if the regression coefficient of y on x is (0.89) and regression coefficient of x on y is (0.75).	1.5	CO3
Q 13	Assign the rank to the variable x . x 13 13 24 6 15 4 20 9 6 19	1.5	CO3
Q 14	For the binomial distribution find q if mean is 9 and variance is 18.	1.5	CO4
Q 15	Explain Binomial and Poisson distributions and differentiate them.	1.5	CO4
Q 16	What will be the probability of getting even numbers if a dice is thrown? <ul style="list-style-type: none"> a. $1/2$ b. 2 c. $4/2$ d. $5/2$ 	1.5	CO3
Q 17	Which of the following is not a discrete distribution: <ul style="list-style-type: none"> a. Binomial b. Poisson c. Normal d. Bernoulli 	1.5	CO4
Q 18	Define population and sample with the help of appropriate example.	1.5	CO5
Q 19	Explain Statistical inference and its importance.	1.5	CO5
Q 20	If the tabulated value of t is greater than the calculated value of t , then null hypothesis will be rejected. State whether the statement is true or false.	1.5	CO5

Section B
(4Qx5M=20 Marks)

Q 1	Explain the importance of literature survey in scientific research.	5	CO1																								
Q 2	Find the missing frequency in the following distribution if N is 100 and median is 30.	5	CO2																								
	<table border="1"> <thead> <tr> <th>Marks</th> <th>0-10</th> <th>10-20</th> <th>20-30</th> <th>30-40</th> <th>40-50</th> <th>50-60</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>No. of students</td> <td>10</td> <td>?</td> <td>25</td> <td>30</td> <td>?</td> <td>10</td> <td>100</td> </tr> </tbody> </table>			Marks	0-10	10-20	20-30	30-40	40-50	50-60	Total	No. of students	10	?	25	30	?	10	100								
Marks	0-10	10-20	20-30	30-40	40-50	50-60	Total																				
No. of students	10	?	25	30	?	10	100																				
Q 3	<p>The regression lines x on y and y on x are given by:</p> $x = 0.5 + 0.5y$ $y = 1.1 + 1.3x$ <p>Evaluate the coefficient of correlation and most probable value of y, when $x = 10$</p>	5	CO3																								
Q 4	The probability that a man aged 50 years will die with in a year is 0.01125. What is the probability that of 12 such men, at least 11 will reach their 51 st birthday.	5	CO4																								
Section C (2Qx15M=30 Marks)																											
Q 1	<p>The following table gives the score obtained by 11 students in Statistics and Physics. Find the coefficient of rank correlation.</p> <table border="1"> <tbody> <tr> <td>Scores in Statistics</td> <td>40</td> <td>46</td> <td>54</td> <td>60</td> <td>70</td> <td>80</td> <td>82</td> <td>85</td> <td>85</td> <td>90</td> <td>95</td> </tr> <tr> <td>Scores in Physics</td> <td>45</td> <td>45</td> <td>50</td> <td>43</td> <td>40</td> <td>75</td> <td>55</td> <td>72</td> <td>65</td> <td>42</td> <td>70</td> </tr> </tbody> </table>	Scores in Statistics	40	46	54	60	70	80	82	85	85	90	95	Scores in Physics	45	45	50	43	40	75	55	72	65	42	70	15	CO3
Scores in Statistics	40	46	54	60	70	80	82	85	85	90	95																
Scores in Physics	45	45	50	43	40	75	55	72	65	42	70																
Q 2	<p>A survey of 400 families each having 3 children was conducted. In how many families, do you expect</p> <ol style="list-style-type: none"> Exactly 3 boys One boy and two girls Only girls. <p>Use Binomial distribution to calculate.</p>	15	CO4																								
Section D (2Qx10M=20 Marks)																											
Q 1	What is the importance of publishing papers in journals? Also describe the aspects to be considered while selecting a journal for publishing.	10	CO1																								
Q 2	<p>Body length of fishes of a species was obtained from two ponds. They were measured as follows (in cm.):</p> <table border="1"> <tbody> <tr> <td>Pond A</td> <td>20</td> <td>24</td> <td>20</td> <td>28</td> <td>22</td> <td>20</td> <td>24</td> <td>32</td> <td>24</td> <td>26</td> </tr> <tr> <td>Pond B</td> <td>12</td> <td>10</td> <td>8</td> <td>10</td> <td>6</td> <td>4</td> <td>14</td> <td>20</td> <td>10</td> <td>6</td> </tr> </tbody> </table> <p>Test whether the mean difference in total body length between the two ponds of fish is significant or not.</p> <p>Tabulated $t_{0.05}$ for 18 degree of freedom is 2.10.</p>	Pond A	20	24	20	28	22	20	24	32	24	26	Pond B	12	10	8	10	6	4	14	20	10	6	10	CO5		
Pond A	20	24	20	28	22	20	24	32	24	26																	
Pond B	12	10	8	10	6	4	14	20	10	6																	