

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2021

Course: Biostatistical Methods In Clinical Research

Semester: 1st

Program: M.Sc. Clinical Research

Time 03 hrs.

Course Code: HSCC7006

Max. Marks: 100

Instructions:

SECTION A

1. Each Question will carry 5 Marks

2. Instruction: Complete the statement / Select the correct answer(s)

S. No.	Statement of question (Attempt all questions)	30	CO																				
Q 1	<p>Which of the following is a possible value for the median of the below distribution?</p> <table border="1"><caption>Histogram Data</caption><thead><tr><th>Class Interval</th><th>Frequency</th></tr></thead><tbody><tr><td>10-15</td><td>36</td></tr><tr><td>15-20</td><td>54</td></tr><tr><td>20-25</td><td>69</td></tr><tr><td>25-30</td><td>81</td></tr><tr><td>30-35</td><td>55</td></tr><tr><td>35-40</td><td>43</td></tr><tr><td>40-45</td><td>25</td></tr><tr><td>45-50</td><td>23</td></tr><tr><td>50-55</td><td>17</td></tr></tbody></table> <p>A) 32 B) 26 C) 17 D) 40</p>	Class Interval	Frequency	10-15	36	15-20	54	20-25	69	25-30	81	30-35	55	35-40	43	40-45	25	45-50	23	50-55	17	5	CO1
Class Interval	Frequency																						
10-15	36																						
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Q 2	<p>Mark the following statements True (T) or False (F)</p> <p>The standard error is a statistical measure of</p> <p>a) a measure of whether the sample was randomly selected or not b) the clustering of scores at each end of a survey scale</p>	5	CO3																				

	<ul style="list-style-type: none"> c) the extent to which a sample mean is likely to differ from the population d) the degree to which a sample has been accurately stratified e) the normal distribution of scores around a sample mean 		
Q 3	<ul style="list-style-type: none"> a) The value of the coefficient of correlation lies between..... b) The non-parametric equivalent of an unpaired samples t-test is..... c) The variables whose calculation is done according to the height, length, and weight are categorised as.....variables. d) Graphical and numerical methods are specialized process utilized in.....statistics. e) When the population consists of heterogeneity,sampling procedure is preferred 	5	CO2
Q 4	<ul style="list-style-type: none"> a) The standard deviation is always..... than the mean deviation. b) The variance of a constant is..... c) When mean, median, and mode are identical, the distribution is..... d) 2nd Quartile = 5th Decile = 50th Percentile = ----- e) If a distribution has two modes then this distribution is called..... 	5	CO4
Q 5	<ul style="list-style-type: none"> A) Statistics describes a numeric set of data by its a)....., b) and c)..... B) An individual value that falls outside the overall pattern is called an d)..... C) The standard deviation of data divided by it's mean is called e)..... 	5	CO2
Q 6	<p>If a positively skewed distribution has a median of 50, which of the following statement(s) is/are true and WHY?</p> <ul style="list-style-type: none"> i) Mean is greater than 50 ii) Mean is less than 50 iii) Mode is less than 50 iv) Mode is greater than 50 v) Both A and C 	5	CO1

SECTION B

1. Each question will carry 10 marks. Answer all 5 questions.

2. Instruction: Write short / brief notes

	Statement of question	50	CO																
Q 1	(a) Distinguish between grouped and ungrouped frequency distributions. (b) Mention any two limitations on statistics.	10	CO1																
Q 2	(a) Distinguish between nominal and ratio scale. (b) What is the difference between discrete and continuous random variables with example.	10	CO2																
Q 3	(a) What is correlation and regression with example? (b) Calculate the mean, mode and median for the following data.	10	CO3																
	<table border="1"> <tr> <td>Class</td> <td>130-134</td> <td>135-139</td> <td>140-144</td> <td>145-149</td> <td>150-154</td> <td>155-159</td> <td>160-164</td> </tr> <tr> <td>Frequency</td> <td>5</td> <td>15</td> <td>28</td> <td>24</td> <td>17</td> <td>10</td> <td>1</td> </tr> </table>	Class	130-134	135-139	140-144	145-149	150-154	155-159	160-164	Frequency	5	15	28	24	17	10	1		
Class	130-134	135-139	140-144	145-149	150-154	155-159	160-164												
Frequency	5	15	28	24	17	10	1												
Q 4	(a) Distinguish between cluster sampling and systematic sampling. (b) Explain relative measures of dispersion.	10	CO4																
Q 5	(a) Define kurtosis of a data and briefly explain the various measures of kurtosis. (b) Write two names of statistical softwares that are used for measures of kurtosis.	10	CO1																

SECTION C

1. Each question will carry 20 marks.

2. Instruction: Write Long Answer.

	Statement of question	20	CO
Q 1	<p>a) Explain the principal methods for calculating the coefficient of correlation. b) Find the Quartiles of the following age:- 23, 13, 37, 16, 26, 35, 26, 35.</p> <p style="text-align: center;">OR</p> <p>a) What are the merits and demerits of Stratified sampling? b) What does rejecting the null hypothesis for an ANOVA tell us?</p>	20	CO4