

**DEPARTMENT OF SCIENCES, II SEMESTER M.Sc. APPLIED MATHEMATICS  
AND COMPUTING  
MAKE-UP END SEMESTER EXAMINATIONS, JUNE 2018  
Subject: [Research Methodology and Technical communication]  
(CODE: HUM 4220)**

**(REVISED CREDIT SYSTEM-2017)**

Time: 3 Hours

Date: 20.06.2018

MAX. MARKS: 50

Note: (i) Answer **ALL** questions.

(ii) Draw diagrams and write equations wherever necessary.

1A.	What are the skills required for a good researcher? Discuss any three.	3																									
1B.	Explain the following terms. (1) Causal research (2) Correlational research	3																									
1C.	Discuss any two characteristics of a good hypothesis.	2																									
2A.	Explain the terms (a) Unit of analysis (b) Snow ball sampling	4																									
2B.	How will you write an effective Problem Statement in Research?	3																									
2C.	Discuss any two methods of collecting primary data with merits and demerits.	3																									
3A.	<p>The following table shows the results of a paired-comparison preference test of four cold drinks from a sample of 200 persons:</p> <table><tr><th>Name</th><th>Coca Cola</th><th>Limca</th><th>Goldspot</th><th>Thumps up</th></tr><tr><td>Coca Cola</td><td>-</td><td>60*</td><td>105</td><td>45</td></tr><tr><td>Limca</td><td>-</td><td>150</td><td>70</td><td>-</td></tr><tr><td>Goldspot</td><td>75</td><td>40</td><td>-</td><td>65</td></tr><tr><td>Thumps up</td><td>165</td><td>120</td><td>145</td><td>-</td></tr></table> <p>* To be read as 60 persons preferred Limca over Coca Cola.</p> <p>How do these brands rank in overall preference in the given sample?</p>	Name	Coca Cola	Limca	Goldspot	Thumps up	Coca Cola	-	60*	105	45	Limca	-	150	70	-	Goldspot	75	40	-	65	Thumps up	165	120	145	-	2
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Thumps up	165	120	145	-																							

3B.	Explain various measures of central tendency with an example.	3																
3C.	<p>The sales data of an item in six shops before and after a special promotional campaign are:</p> <p><b>Shops:                    A   B   C   D   E   F</b></p> <p><b>Before the campaign:   53 28 31 48 50 42</b></p> <p><b>After the campaign:    58 29 30 55 56 45</b></p> <p>Can the campaign be judged to be a success? Test at 5 per cent level of significance. Use paired t-test.</p> <hr/>	3																
4A.	<p>The table given below shows the data obtained during outbreak of smallpox:</p> <table><tr><td></td><td><b>Attacked</b></td><td><b>Not attacked</b></td><td><b>Total</b></td></tr><tr><td><b>Vaccinated</b></td><td><b>31</b></td><td><b>469</b></td><td><b>500</b></td></tr><tr><td><b>Not vaccinated</b></td><td><b>185</b></td><td><b>1315</b></td><td><b>1500</b></td></tr><tr><td><b>Total</b></td><td><b>216</b></td><td><b>1784</b></td><td><b>2000</b></td></tr></table> <p>Test the effectiveness of vaccination in preventing the attack from smallpox. Test your result with the help of <math>\chi^2</math> at 5 per cent level of significance.</p>		<b>Attacked</b>	<b>Not attacked</b>	<b>Total</b>	<b>Vaccinated</b>	<b>31</b>	<b>469</b>	<b>500</b>	<b>Not vaccinated</b>	<b>185</b>	<b>1315</b>	<b>1500</b>	<b>Total</b>	<b>216</b>	<b>1784</b>	<b>2000</b>	4
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4B.	What are the ethical values associated with publishing a research paper.	3																
4C.	How is literature review conducted? Explain in detail.	4																
5A.	Explain about oral and poster presentation in conferences in detail.	4																
5B.	What is plagiarism? Explain how you can avoid plagiarism with respect to literature survey.	4																
5C.	<p>(i) Name at least 3 publishers and 3 journals of Mathematics. Also name 5 of the indexing sources. Write the structure of the paper in detail.</p> <p>(ii) Explain about IEEE citation style guide.</p>	5																