

Reg. No.

DEPARTMENT OF SCIENCES, II SEMESTER M.Sc. APPLIED MATHEMATICS AND COMPUTING END SEMESTER EXAMINATIONS, APRIL 2018 Subject: [Research Methodology and Technical communication]

(CODE: HUM 4220)

(REVISED CREDIT SYSTEM-2017)

Time: 3 Hours

Date: 24.04.2018

MAX. MARKS: 50

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

(ii) Draw diagrams and write equations wherever necessary.

1A.	Differentiate between Type 1 and Type 2 error. Give examples.	3
1B.	Differentiate between Probability and Non Probability sampling.	3
1C.	Explain nominal and ordinal data with an example for each.	2
2A.	A university claims that at least 50% of the students use mobile phones in class. A researcher believes that this number is too high and randomly samples 50 students to test at a significance level of 0.02. Write null and alternative hypothesis.	4
2B.	Explain Meta-analysis and Exploratory research.	3
2C.	Explain about Central limit theorem in detail.	2
3A.	Discuss the methods of collecting primary data with merits and demerits.	3
3B.	Memory capacity of 9 students was tested before and after training. State at 5 per cent level of significance whether the training was effective from the following scores: Student: 1 2 3 4 5 6 7 8 9 Before: 10 15 9 3 7 12 16 17 4 After: 12 17 8 5 6 11 18 20 3 Use paired <i>t</i> -test.	3

3C.	Weight of 10 students is as follows: S. No.: 1 2 3 4 5 6 7 8 9 10 Weight (kg.): 38 40 45 53 47 43 55 48 52 49 Can we say that the variance of the distribution of weight of all students from which the above sample of 10 students was drawn is equal to 20 kgs.? Test this at 5 per cent and 1 per cent level of significance.	3
4A.	A group of seven-week old chickens reared on a high protein diet weigh 12, 15, 11, 16, 14, 14, and 16 ounces; a second group of five chickens, similarly treated except that they receive a low protein diet, weigh 8, 10, 14, 10 and 13 ounces. Test at 5 per cent level whether there is significant evidence that additional protein has increased the weight of the chickens. Use assumed mean (or $A1$) = 10 for the sample of 7 and assumed mean (or $A2$) = 8 for the sample of 5 chickens in your calculations.	4
4B.	What is IEEE citation style guide and Harvard styles of referencing?	3
4C.	Explain the purpose of literature review in detail.	4
5A.	Write about oral and poster presentation in conferences.	4
5B.	What is plagiarism? Explain the different types of plagiarism. Also give a brief note on software used to check for plagiarism.	4
5C.	(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.(ii) Explain about the ethics of research.	5