

Registration Number: Date & session:

# ST. JOSEPH’S UNIVERSITY, BENGALURU -27 M.Sc (ZOOLOGY) – III SEMESTER

**SEMESTER EXAMINATION: OCTOBER 2023**

**(Examination conducted in November/December 2023)**

# ZO 9423 –RESEARCH DESIGN AND METHODOLOGY

**(For current batch students only)**

**Time: 2 Hours Max Marks: 50**

**This paper contains THREE printed pages and FOUR parts.**

# PART-A

## Answer ALL of the following: 5 x 1 = 5

1. is the first step in the research process.
2. You should aim to publish your research in indexed journals.
3. In research, a is the opposite of what you expect or your proposed explanation for a phenomenon.
4. is a baseline statistic to compare means between two groups.
5. is a global repository of all publications, genetic and protein sequence information available to the public.

# PART B

## Answer ALL of the following 5 x 2 = 10

1. What is the main purpose of a hypotheses in research? What kind of research may not require hypotheses?
2. How can preliminary studies useful in research?
3. Briefly discuss the danger of designing a research project without literature review.
4. To what agencies will you apply to procure funding in a) marine sciences, b) genetically modified crops, c) cancer, and d) ecology and environmental sciences?
5. What is the difference between a Kruskal-Wallis test and an ANOVA.

# PART C

## Answer any THREE of the following 3 x 5 = 15

1. Briefly explain what ethical components are required for research on humans.
2. Demonstrate how you would reference: a) research paper, b) book, c) in-text citation with two authors and in-text citation with more than two authors, and d) a research paper with three authors, and e) a research paper with more than 4 authors.
3. Briefly explain the relationship between reliability and validity of data with a diagram.
4. Outline how the introduction and discussion should be related in a thesis.
5. Use your knowledge of interpreting correlation vs. cause-and-effect to explain what is wrong with the interpretation made in the cartoon figure below?

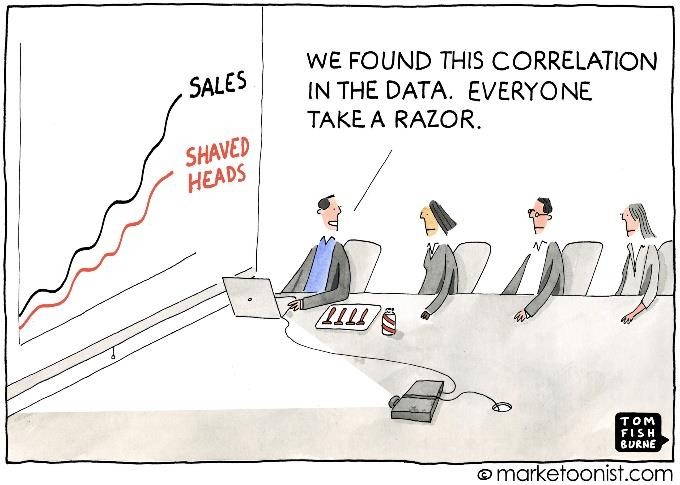


Fig for Q 16

# PART D

## Answer any TWO of the following 2 x 10 = 20

1. Explain the major components of a research proposal. Provide a rationale for what should be included in each component and why.
2. You are given the task of determining whether 10 species of Butterflies share a common ancestor. Briefly explain the computational pipeline and relevant software you would use to achieve this objective. ***Note:*** *sequences for these 10 species exist in databases.*
3. What are the key differences between a thesis and a manuscript written for publication.

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