**ST JOSEPH’S UNIVERSITY, BENGALURU-27**

**M.Sc. BIOTECHNOLOGY – I SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**BT7422 – RESEARCH METHODOLOGY AND SCIENTIFIC WRITING**

**Time- 2 hrs Max Marks-50**

**This question paper contains ONE printed page and THREE parts**

**I. Answer *ANY SEVEN* questions 2m x 7 = 14 marks**

1. What are some practical ways in which you can spot pseudoscientific claims? Mention any four.

2. Contrast Descriptive and Correlational hypotheses.

3. What are the characteristics of a good hypothesis?

4. Compare Applied versus Basic research.

5. What are the various considerations while selecting a research problem?

6. Name the four components of a research design.

7. Comment on the need for ethical clearances in research.

8. Define Journal Impact Factor.

9. Name any two reference management systems, and mention the advantages of such reference management systems.

**II. Answer *ANY FOUR* questions 5m x 4 = 20 marks**

10. The criterion of the scientific status of a theory is its falsifiability, or refutability, or testability. Elaborate, using a relevant example.

11. What are some ways to identify predatory scientific journals?

12. What are the major differences between narrative and systematic literature reviews?

13. What are the general rules for responsible referencing?

14. Describe the process of peer review in scientific publishing.

15. Using a suitable example, explain the different types of replicates crucial in experimental designs.

**III.Answer *ANY TWO* questions 8m x 2 = 16 marks**

16. Based on the research proposal you worked on during this course, answer the following

questions:

a. What were the main highlights of your literature review? What were the gaps you

identified when you surveyed existing literature?

b. Briefly describe the objectives of your research proposal.

c. Describe why what you are proposing to do is relevant.

d. Describe your plan for data collection and analysis.

17. Outline the general structure/anatomy of a peer reviewed research article. Describe how you would critique individual sections of a given research article. Briefly describe why an article critique is valuable.

18. If you are doing an RT-PCR test to test for the presence of the SARSCov-2 virus, explain which are the various controls you need to use to be able to accurately report results, and why you need to use them.