

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3, EXAMINATION- 2024
M.Sc.-II Semester (BT)

COURSE CODE (CREDITS):20MS1BT216 (3)
COURSE NAME: Research Methodology and Scientific Communications
COURSE INSTRUCTORS: Dr. Gopal Singh Bisht

MAX. MARKS: 35

MAX. TIME: 2 Hour

Note: (a) all questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q1. Answer the following questions.

- What types of errors should be considered as part of the research process? In research reports, what is the meaning of entries such as $p=0.042$ and $df(22)$? [3]
- Discuss the forms of plagiarism. How do you detect plagiarism? How to avoid plagiarism? [3]
- What is informed consent, and what does it consist of? Take suitable examples to explain ethical lapses. [3]
- There are many commercially operated ghostwriting websites. Some people argue that writing is not part of science. What do you think about this opinion? Is it ethically acceptable to publish ghost-written scientific papers? [3]
- "Enumerate various reasons for obtaining negative results and examine scenarios in which it is beneficial to present or publish negative results." [3]
- What is an independent variable? Explain how it is used in the research process by taking a suitable example. [3]
- Defining the research problem is the most critical task in the research process. Explain your views by providing suitable examples. [4]

Q2. Read the following case study carefully then answer the questions.

Case A: Dr. Smith is conducting a research study on the effects of social media usage on mental health. Participants are required to provide detailed personal information, including their social media activity, mental health history, and demographic details. The research is valuable, but there are concerns about how the data is being handled, stored, and shared.

- What are the ethical issues related to data privacy in this study? [1]
- How should Dr. Smith address these concerns to ensure ethical compliance? [1.5]
- What steps can be taken to protect the participants' personal information? [1.5]

Case B: Dr. Sudhir is conducting a clinical trial for a new drug developed by a pharmaceutical company. Dr. Sudhir receives significant funding from this company for his research lab. There is concern that this financial relationship could bias the research outcomes.

- i. What are the ethical concerns related to conflict of interest in this scenario?[1]
- ii. How can Dr. Sudhir manage this conflict of interest to maintain research integrity?[1]
- iii. What role does transparency play in addressing this ethical issue?[1]

Q3. Analyze the impact of competitive research funding on the innovation output of academic institutions. Design a proposal for a new funding program aimed at supporting early-career researchers in the field of biological sciences. [6]

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