

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATIONS-2022

M.Tech-II Semester (BT)

COURSE CODE (CREDITS): 20MSIBT216 (3)

MAX. MARKS: 35

COURSE NAME: Research Methodology and Scientific Communications

COURSE INSTRUCTORS: Dr. Gopal Singh Bisht

MAX. TIME: 2 Hours

Note: All questions are compulsory. Marks are indicated against each question in square brackets. This paper contains two pages

Q1. Study the case and answer the following questions.

[6]

Shen was always interested in bioinformatics and decided to use some of his free time to write a program that others in his microbial genetics laboratory would find useful. Starting with a popular spreadsheet program on his university-provided computer, he wrote the program over the summer and posted it on his personal Web page as a bundle that combined the spreadsheet program and his own program. Over the next academic year, he improved his program several times based partly on the feedback he got from the people in his laboratory who were using it. At national meetings, he discovered that researchers in other laboratories had begun to download and use his program package, and friends told him that they knew of researchers who were using it in industry. When the issue arose in a faculty meeting, Shen's faculty adviser told him that he should talk with the university's technology transfer office about commercializing it. "After all," his adviser said, "if you don't, a company will probably copy it and sell it and benefit from your hard work."

The director of the technology transfer office was much more concerned about another issue: the fact that Shen had been redistributing the spreadsheet in violation of its license. "You do have rights to what you created, but the company that sells this spreadsheet also has rights," he said. "We need to talk about this before we talk about commercialization."

- What obligations does Shen have to the developer of the original spreadsheet program? To the university that provided the spreadsheet and computer?
- What are the pros and cons of trying to commercialize a program that is based on another's product?
- What conflicts and practical difficulties might Shen encounter if he tries to operate a business while working on his dissertation?

Q2. Answer the following question.

[2x5=10]

- Explain inductive and deductive reasoning by taking suitable example.
- How many consecutive identical and uncited words constitute plagiarism and why?
- Salami slicing is not in the best interest of science, Explain.
- Provide functions of hypothesis.
- Explain independent variable, dependent variable and control used in hypothesis by taking suitable example.

Q3. Enumerate various reasons of getting negative results. Discuss case where it is worthwhile to present/ publish negative results.

[3]

Q4. Describe the component and characteristics of research grant. List the question one need ask before submitting research grant. Discuss common reason cited by research grant application reviewer for an applications failure to gain award. [6]

Q5. A discussion section of manuscript sets forth the relevance of research findings. Discuss common faults, which researcher should not do, while writing discussion section. [4]

Q6. Study the case and answer the following questions. [1.5x4=6]

Vijay, who has just finished his first year of graduate school, is applying to the National Science Foundation for a predoctoral fellowship. His work in a lab where he did a rotation project was later carried on successfully by others, and it appears that a manuscript will be prepared for publication by the end of the summer. However, the fellowship application deadline is June 1, and Vijay decides it would be advantageous to list a publication as "submitted" rather than "in progress." Without consulting the faculty member or other colleagues involved, Vijay makes up a title and author list for a "submitted" paper and cites it in his application. After the application has been mailed, a lab member sees it and goes to the faculty member to ask about the "submitted" manuscript. Vijay admits to fabricating the submission of the paper but explains his action by saying that he thought the practice was not uncommon in science. The faculty members in Vijay's department demand that he withdraw his grant proposal and dismiss him from the graduate program.

- a. Do you think that researchers often exaggerate the publication status of their work in written materials?
- b. Do you think the department acted too harshly in dismissing Vijay from the graduate program?
- c. If Vijay later applied to a graduate program at another institution, does that institution have the right to know what happened?
- d. What were Vijay's adviser's responsibilities in reviewing the application before it was submitted?