

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2025)

CLASS: IMSc
BRANCH PHYSICS

SEMESTER : IV
SESSION : SP/2025

SUBJECT: SEC303 COMPUTATIONAL PHYSICS SKILLS

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

Q.1 What is LaTeX? Discuss the advantages of LaTeX over other document preparation tools such as MS Word. [5] CO 5 BL 2

Q.2 Write the following mathematical expression in LaTeX, label it, and reference it in a sample text: [5] 5 3
$$\frac{1}{\pi} \int_a^b f(x) g(x, y) dx.$$

Q.3 Write down the scripts to create the following 3x3 table in LaTeX: [5] 5 3

Table 1: Description of objects.

Col 1	Col 2	Col 3
apple	red	5
banana		12

Q.4(a) What is an Operating System? [2] 1 1

Q.4(b) Write the bash command for the following: [3] 1 3
(i) determine the present working directory.
(ii) Find out If the file contains the desired string.
(iii) Connect to a remote computer (IP address: 172.16.23.1) with username 'user'.

Q.5 Describe the steps in bash to achieve the following: [5] 1 3
(i) Create a (new) folder.
(ii) Create a new file in that folder with the information about your name, age, gender, and address.
(iii) Check the permission for the (newly created) file.
(iv) copy the file to a different directory
(v) delete the file