

D 50690

(Pages : 2)

Name.....

Reg. No.....

**FIFTH SEMESTER (CBCSS-UG) DEGREE EXAMINATION
NOVEMBER 2023**

Physics/Applied Physics

PHY 5B 06/APH 5B 06—COMPUTATIONAL PHYSICS

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answer Type)

*Answer all questions in two or three sentences,
each correct answer carries a maximum of 2 marks.*

1. Differentiate between compilers and interpreters.
2. What are modules ?
3. Define slicing operation in a list with one example.
4. Write a python program to calculate circumference of a circle.
5. Write the syntax of linspace function in numpy module.
6. What are vectorized functions ?
7. Write down Newton - Raphson formula.
8. Write down Forward difference table.
9. Discuss Modified Euler's method.
10. Discuss the significance of computer in numerical methods.
11. What are polar plots ?
12. Discuss the accuracy consideration in simulation.

(Ceiling 20)

Section B (Paragraph / Problem type)

*Answer all questions in a paragraph of about half a page to one page,
each correct answer carries a maximum of 5 marks.*

13. Find the real root of the equation $f(x) = x^3 - x - 1 = 0$ using bisection method.
14. Discuss Simpsons 1/3 rule.
15. Write a note on conditional execution in python.
16. Write a program to print the multiplication table of 8.

Turn over

17. Write down the functions used for finding cross and dot products in python. Write a program to demonstrate the dot and cross products.
18. Write a python program to simulate motion of a body dropped into a highly viscous medium.
19. Write a note on graphical simulation; take radioactive decay as an example.

(Ceiling 30)

Section C (Essay type)

*Answer in about two page, any **one** question,
The correct answer carries 10 marks.*

20. What do you mean by curve fitting ? Discuss Curve fitting procedure to fit a straight line through given data points.
21. Write an essay on operators used in python language. List the operators according to their precedence.

(1 × 10 =10 marks)