Reg.No.............................

Name: ....

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2023

(Regular/Improvement/Supplementary)

PHYSICS: COMPLEMENTARY COURSE FOR MATHEMATICS & CHEMISTRY

GPHY4C04T: ELECTRICITY, MAGNETISM AND NUCLEAR PHYSICS

Time: 2 Hours   **Maximum Marks: 60**

SECTION A: Answer the following questions. Each carries *two* marks.
(Ceiling 20 Marks)

1. State Gauss law in electrostatics. Give integral form of Gauss law.

2. What is dielectric constant?

3. What is superconductivity?

4. What is the cause of electrical resistance in metals?

5. Distinguish between conductor and semiconductor on the basis of temperature   coefficient of resistance.

6. What is hysteresis?

7. What are retentivity and coercivity of a magnetic material?

8. What is Bohr Magneton? What is its value?

9. How does the sensitivity depend on the reduction factor of TG?

10. What are the applications of NMR?

11. What are quarks?

12. What are the main constituents of secondary cosmic rays?

SECTION B: Answer the following questions. Each carries *five* marks.
(Ceiling 30 Marks)

13. What is electrostatic shielding?

14. Show that the curl of electric field in a region is always zero.

15. What is the principle of vibration magnetometer?

16. Define reduction factor of TG.

17. Explain nuclear fission and fusion from the binding energy curve.

18. Explain cosmic ray showers.

19. Write a note on Higgs Boson.

SECTION C: Answer any *one* question. Each carries *ten* marks.

20. Explain the theory of Potentiometer. How can we measure resistance of a wire using Potentiometer?

21. Explain various kinds of Particle Accelerators.

(1 × 10 = 10 Marks)