SUB.CODE: 18UMM2A3

REG.NO: | | | | | | | | | | |

DHANALAKSHMI SRINIVASAN COLLEGE OF ARTS & SCIENCE FOR WOMEN (AUTONOMOUS)

(For Candidates admitted from 2020-2021 onwards)

UG DEGREE EXAMINATIONS APRIL - 2021

B.Sc., – MATHEMATICS

GENERAL PHYSICS-II

Time: 3 Hrs **Max.Marks: 75**

PART - A

CHOOSE THE CORRECT ANSWER **(10X1=10)**

1. Coulomb is the unit of which quantity?
   a) Field Strength b) Charge c) Permittivity d) Force
2. Capacitor stores which type of energy?
   a) Kinetic energy b)Vibrational energy c) Potential energy d)Heat energy
3. In which of the following magnetic moment is zero?
   a) Ferrimagnetic material b) Paramagnetic material
   c) Ferromagnetic material d) Diamagnetic material
4. At high temperature a Ferromagnet becomes_____
   a) Diamagnetic b) Paramagnetic c) Hard Ferromagnet d) Self Ferromagnet
5. Which of the following quantum numbers gives the shape of atomic orbital of subshell?
   a)n b)l c)m d)s
6. No two electrons in an atom exist in the same quantum state. It is called_____
   a) Aufbau principle b) Pauli's exclusion principle
   c)Hund's Rule d) Heisenberg's uncertainty principle
7. Number of protons in the nucleus is called_____
   a) Electric charge b) Mass number c) Atomic number d) Periodic number
8. The rest mass of mesons varies between about _____m_e and _____m_e
   a) 150, 2000 b) 200, 1200 c) 100, 2000 d) 250, 1000
9. The Universal gate is _____
   a) AND b) EX-OR c) NAND d) OR
10. Perform binary addition of 1101+0010 is _____
    a) 1110 b) 1111 c) 0111 d)1101

PART - B

ANSWER ALL THE QUESTIONS **(5X7=35)**

11. a) Describe Electric field due to a uniformly charged sphere

(OR)

b) Obtain the expressions for energy stored in a charged capacitor and energy density

12. a) Write short notes on (i) Magnetisation (ii) Magnetic Susceptibility

(OR)

b) Discuss the importance of hysteresis curves

13. a) Explain the following: (i) Pauli's exclusion principle (ii) Moseley's law (iii) Bragg's law

(OR)

b) Describe Continuous X-ray spectrum

14. a) Explain Classification of Nuclei

(OR)

b) Describe construction and working of Betatron with Diagram

15. a) Describe the procedure of (i) Octal to Decimal conversion (ii) Decimal to Binary conversion.

(OR)

b) Give in detail the logic operation of AND, OR, and NOT GATE with logic symbol, Boolean expression and truth table.

PART - C

ANSWER ANY THREE QUESTIONS **(3X10=30)**

16. Describe the combined resistance value when the resistors are connected in series and parallel with suitable circuit diagrams
17. List out the properties of Dia, Para, ferro magnetic materials
18. Describe Sommerfeld's relativistic atom model and derive the expression for condition of elliptic orbits for hydrogen
19. Explain liquid drop model and semi empirical mass formula
20. (i) Find the decimal form for the two binary number 1101_2 and 10111_2

    (ii) Convert decimal number 214 to its octal equivalent