

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc (SS) DEGREE EXAMINATION MAY 2024
(First Semester)

Branch – SOFTWARE SYSTEMS (five year integrated)

APPLIED PHYSICS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 Which of the following is a gas Laser?
(i) He-Ne Laser (ii) Ruby Laser
(iii) Semiconductor Laser (iv) Nd-YAG Laser
- 2 Which of the following factor affect information carrying capacity of the optical fiber?
(i) Attenuation (ii) Dispersion
(iii) Total Internal Reflection (iv) Absorption
- 3 Which one of the following RTD material is mostly is used material?
(i) Platinum (ii) Nickel
(iii) Gold & Silver alloy (iv) Phosphor – Bronze alloy
- 4 What factors affect the resistivity of metals?
(i) Temperature and type of metal only
(ii) Temperature, type of metal, and cross-sectional area
(iii) Temperature, type of metal, and length
(iv) Temperature, type of metal, length, and cross-sectional area
- 5 Name the force exerted by magnetic field in Hall effect transducers.
(i) Hall Effect Force (ii) Electric Force
(iii) Magnetic Force (iv) Lorentz Force
- 6 Which of the following is a Volatile memory device?
(i) RAM (ii) ROM
(iii) PROM (iv) EPROM
- 7 Name the reverse magnetic field which can be used to remove the residual magnetism of a material.
(i) Retentivity (ii) Magneton
(iii) Coercivity (iv) Magnetic moment
- 8 When the temperature increases, the magnetic susceptibility of a ferromagnetic material will _____
(i) Increases (ii) Decreases
(iii) Increases initially and then decreases (iv) Remains constant
- 9 Which one of the method is useful for preparing nanomaterial by assembling the atoms?
(i) Cross down approach (ii) Diagonal approach
(iii) Top down approach (iv) Bottom up approach
- 10 What is the magnetic susceptibility of an ideal Superconductor?
(i) 1 (ii) - 1 (iii) 0 (iv) Infinite

Cont...

SECTION - B (35 Marks)Answer **ALL** Questions**ALL** Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a State the usage of lasers in cutting, drilling and welding.
OR
b Explain in brief about Fiber Optic Communication systems.
- 12 a Explain the factors affecting Resistivity of metals.
OR
b Discuss about Drude – Lorentz Theory of electrical conduction.
- 13 a Analyze the applications of Semiconducting materials.
OR
b Discuss briefly about RAM and ROM.
- 14 a Classify the types of magnetic materials.
OR
b Summarize the uses of magnetic materials in Magneto-Optical memory devices.
- 15 a Evaluate the characteristics and properties of Shape Memory Alloys.
OR
b Illustrate the properties of Superconductors.

SECTION - C (30 Marks)Answer any **THREE** Questions**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Analyze in detail about the construction and working of a Nd:YAG Laser with a neat diagram.
- 17 Elucidate the construction and working of a Resistive Thermometer Detectors.
- 18 Analyze the experimental procedure for the determination of Hall Coefficient of an Extrinsic semiconductor with suitable interpretation.
- 19 Evaluate the Domain Theory of Ferromagnetism.
- 20 Interpret the methodology of preparing nanoparticles by Physical Vapour Deposition Technique.

Z-Z-Z

END