

B. Sc. (Part -I) (Semester -II) (N.E.P.) Examination: Nov. 2023
Arts and Commerce College, Mayani
Physics Paper IV
Subject Code: 59682

Day & Date: 04/11/2023
Period: 2 hours

Total Marks: 50
Time : 10.30 to 12.30

Q.1) Select the most correct alternative.

(10)

- i) The operator j on multiplication turn's a vector through.....
a) 180° b) 90° c) 45° d) 0°
- ii) The impedance (Z) of series LCR circuit is
a) $r^2 + (x_l - x_c)^2$ b) $\sqrt{r^2 + (x_l - x_c)^2}$ c) $\sqrt{(x_l - x_c)^2}$ d) R
- iii) Which of the following is an active element.
a) Resistor b) capacitor c) Transistor d) inductor
- iv) Mathematically Oh's law is represented as
a) $I = VR$ b) $V = IR$ c) $R = VI$ d) $V = I+R$
- v) Current sensitivity is the reciprocal of
a) Voltage sensitivity b) figure of merit c) Charge Sensitivity d) Current density
- vi) SI unit of magnetic induction is
a) A-m b) m/A c) A/m d) wb/m²
- vii) Magnetic susceptibility is χ
a) $\frac{B}{H}$ b) $\frac{H}{M}$ c) MH d) $\frac{M}{H}$
- viii) The Magnitude of imaginary quantity j is
a) 1 b) -1 c) $\sqrt{1}$ d) $\sqrt{-1}$
- ix) For diamagnetic materials.....
a) $\mu > \mu_0$ b) $\mu > \mu$ c) $\mu \gg \mu_0$ d) $\mu \ll \mu$
- x) Susceptibility of diamagnetic materials is
a) Positive b) Negative c) Zero d) None of these

Q.2 Attempt any two. (SA₁)

(20)

- 1) Explain Owen's A.c bridge to determine inductance of a (oi).
- 2) State and explain Norton theorem
- 3) Explain construction and working of B.G.

Q.3. Attempt any Four. (SA₂)

(20)

- 1) Define Q – factor of series LCR Circuit
- 2) Define hysteresis hysteresis curve.
- 3) State properties of ferromagnetic materials
- 4) State and explain Ampere's Circuital law.
- 5) write a note on constants of B.G.