

Questions for Internal Exam.

B.Sc. Sem. V (2019-2022)

Physics (Hons) Core paper (11)

Answer any two questions

2X5=10

- ① Derive Schrodinger's time dependent wave equation for a wave associated with a moving particle in a potential field V .
- ② Explain probability current and probability current density. Give the physical significance of a wave function.
- ③ What is normalization of a wavefunction? How is it mathematically expressed? Find out the normalisation factor of Schrodinger wave equation.
- ④ What is Stern-Gerlach experiment?
- ⑤ What is normal Zeeman effect? Distinguish between normal and anomalous Zeeman effect.

Question for Internal exam.

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B.Sc. Sem V (2019-2022)

Physics (Hons) Core paper (12)

Answer any two questions

2x5=10

- ① Distinguish between crystalline and amorphous solids.
- ② What are Miller indices? How are they determined?
- ③ What is intrinsic Semiconductor? Deduce expression for the number of density of electrons in conduction band and holes in the valance band of an intrinsic Semiconductor.
- ④ What do you mean by symmetry operations? Explain briefly the various symmetry operations to two dimensional and three dimensional lattice.
- ⑤ What is 'Halleffect'? Find Hall Coefficient in a metal, where the carriers are only electrons.

Internal questions of B.E. Sem IV
(2019-2022)

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DSE 1

Answer any two questions

2x5 = 10

- (1) What is 'Modulation'? Derive an expression for amplitude modulated wave with sinusoidal modulation.
- (2) How does MOSFET differs from J-FET?
- (3) What is UJT (uni-junction transistor)? Draw an equivalent circuit of UJT and explain its working.
- (4) Describe construction and working of N-channel J-FET and discuss its drain characteristics.

Physics (Hons.)

DSE-(2)

Answer any two questions

(1) obtain Euler-Lagrange differential equation by variational principle

(2) state and prove Hamiltonian principle.

(3) set up Lagrangian for a simple pendulum and obtain the equation describing its motion.

(4) What is linear operator. State two important properties of a linear operator also define Hermitian operator.