KARIMPUR PANNADEVI COLLEGE

Internal Assessment 2020-21, Semester – V

Sub: PHYSICS (Honours) Paper : HCC-T-11

Full Marks : 10

Answer any five questions **(5×2 = 10)**

1. What do you understand by the term wave function?
2. Write down the one dimensional Schrodinger's time independent equation and write the same for a free particle.
3. Is the wave function $\psi(x) = e^x$ well behaved ? if not, then why?
4. Show that Eigen values of a Hermitian operator are real
5. What is the physical definition of an expectation value?
6. Evaluate the commutator $\left[x, \frac{d}{dx}\right]$ by operating on a wave function.
7. If you double the width of a one-dimensional infinite potential well, what will be the new energy of the ground state?
8. Set up the Hamiltonian for simple harmonic oscillator.