CITY COLLEGE

Internal Examination 2020−2021

Physics (Hons.) CBCS Semester 5

Paper: CC11 (Quantum Mechanics and Applications)

Time: 1 Hour; Full Marks: 20

Answer any <u>ten</u> questions from the following: **10×2=20**

1. What is the main significance of Stern-Gerlach Experiment?
2. Write down Larmor's Theorem.
3. What are Normal and Anomalous Zeeman Effect?
4. State Pauli's Exclusion Principle.
5. What is a wave packet?
6. What are stationary states?
7. What is zero-point energy of harmonic oscillator?
8. What are spherical harmonics? Are they mutually orthogonal?
9. Define a general angular momentum operator.
10. What are symmetric and antisymmetric wave functions?
11. What is Stark effect?
12. The energy of a state does not depend on spin wave function. Why?

Answer script must be emailed to **<u>sem5hcityphysics@gmail.com</u>** within 15 minutes of the end of the examination.