

Roll No.

Total No. of Pages : 02

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B.Sc.(CS) (Sem.-4)
QUANTUM MECHANICS

Subject Code : BCS-404

M.Code. : 72320

Date of Examination : 13-07-22

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and a student has to attempt any FOUR questions.

SECTION-A

1. Answer briefly :

- a) Discuss the inadequacies of classical mechanics.
- b) What do you understand by '*Uncertainty Principle*'?
- c) What is Operator Correspondence?
- d) What is an eigen value equation?
- e) Discuss the significance of probability current.
- f) What are degenerate states?
- g) What are orthogonal states?
- h) State Mosley Law.
- i) Briefly explain Auger effect.
- j) What is a symmetric structure?

SECTION-B

2. Explain in detail the concept of wave particle duality.
3. How is the wave packet formed for the particles?
4. State and prove Ehrenfest theorem.
5. Solve the Schrödinger wave equation for potential barrier.
6. Explain the theory of Raman spectra.
7. Explain the rotational and electronic spectra of the molecules.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.