

DRAVIDIAN UNIVERSITY Directorate of Distance Education (DDE) KUPPAM – 517 426:: A.P. Course: II year M.Sc PHYSICS Paper – I QUANTUM MECHANICS

Answer any **<u>THREE</u>** of the following **<u>FIVE</u>** Questions.

3x10=30

- 1. Explain the basic postulates of quantum mechanics.
- 2. Show the WKB method for Green's function in scattering theory.
- 3. Describe the significance method of partial waves for scattering.
- 4. Distinguish Schrodinger, Heisenberg and interaction pictures.
- 5. What is second quantization? Discuss the quantization of Schrodinger wave equation.



DRAVIDIAN UNIVERSITY Directorate of Distance Education (DDE) KUPPAM – 517 426:: A.P. Course: II year M.Sc PHYSICS Paper – II NUCLEAR PHYSICS AND ANALYTICL TECHNIQUES

Answer any **<u>THREE</u>** of the following **<u>FIVE</u>** Questions. 3x10=30

- What are the magic numbers? How do you establish their existance? How the magic numbers are explained theoritically?
- 2. Derive weiszacker`s semi empirical mass formula and explain the significance of various terms involved in the equation.
- 3. Explain the construction, working and applications of photo Acoustic spectroscopy.
- 4. Explain the properties of leptons and mesons.
- 5. Discuss the Fermi's Theory of B-decay.

Set - I



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Paper –III CONDENCED MATTER PHYSICS

Answer any **<u>THREE</u>** of the following **<u>FIVE</u>** Questions. 3x10=30

- 1. Discuss the Debye's Theory of Specific Heat. What is Bron cut off procedure?
- 2. What is stress and strain tensor?
- 3. Describe the pulse-echo technique for the determination of elastic constants.
- 4. Discuss the inert gas condensation technique for the synthesis of Nano materials.
- 5. What is fermi Surface? Discuss the constriction of Fermi Surface in two dimentions.



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Answer any <u>**THREE**</u> of the following <u>**FIVE**</u> Questions. 3x10=30

- 1. Discuss the address decoding
- 2. Explain the I/O port address decoding
- 3. With suitable examples, explain the arithimetic and logic instructions.
- 4. With a neat diagram, discuss the internal architechture of a

microprocessor.

5. Explain in Delta Modulation