A N N A M A L A I U N I V E R S I T Y

(Accredited with 'A+' Grade by NAAC)

CENTRE FOR DISTANCE AND ONLINE EDUCATION

Annamalainagar – 608 002.

Semester Pattern: 2023-24
Second Semester
Instructions to submit Second Semester Assignments

1. Following the introduction of semester pattern, it becomes **mandatory for candidates to submit assignment for each course.**
2. Assignment topics for each course will be displayed in the A.U, CDOE website (**www.audde.in**).
3. Each assignment contains 5 questions and the candidate should answer all the 5 questions. Candidates should submit assignments for each course separately. (5 Questions x 5 Marks =25 marks).
4. Answer for each assignment question should not exceed 4 pages. Use only A4 sheets and write on one side only. **Write your Enrollment number on the top right corner** of all the pages.
5. Add a template / content page and provide details regarding your Name, Enrollment number, Programme name, Code and Assignment topic. Assignments without template / content page will not be accepted.
6. Assignments should be handwritten only. Typed or printed or photocopied assignments will not be accepted.
7. **Send all Second semester assignments in one envelope**. Send your assignments by Registered Post to The Director, Center for Distance and Online Education, Annamalai University, Annamalai Nagar – 608002.
8. Write in bold letters, "**ASSIGNMENTS – SECOND SEMESTER**" along with PROGRAMME NAME on the top of the envelope.
9. Assignments received after the **last date with late fee** will not be evaluated.

Date to Remember

Last date to submit Second semester assignments : **15.04.2024**
Last date with late fee of Rs.300 (three hundred only) : **30.04.2024**

Dr. T. SRINIVASAN
Director

Programme: M. Sc Physics

FIRST YEAR
SEMESTER – II

Assignment Topics

019E1210 : MICROPROCESSORS AND MICROCONTROLLER

1. a. Explain the bus structure of 8085 microprocessor.
   b. With neat diagram explain the machine cycle of 8085.

2. Explain the various addressing modes of 8085 microprocessor with example

3. a. Discuss the interrupt structures in 8086
   b. Explain memory addressing of 8086.

4. Write an assignment on the simple programs of 8051 microcontroller. i) addition, ii) subtraction, iii) multiplication and iv) division.

5. Explain the function of 8255 PPI with neat diagram.

019E1220 : QUANTUM MECHANICS - I

1. a. Deduce Schrodinger wave equation
   b. State and prove Ehrenfest Theorem.

2. a. Derive the wave function of a particle in a box. Also find the Eigen value and Eigen function using Schrödinger's Equation

   b. Write notes on Pauli Spin matrices.

3. Explain how on can solve the problem of the hydrogen atom quantum mechanically. Solve the radial part of the Schrödinger's equation for hydrogen atom and obtain energy eigen values.

4. a. Distinguish with between schrodinger, Heisenberg & interaction representation &, obtain the equator of motion in each representation.

   b. Define the Clebsch-Gordan coefficient and discuss their symmetry properties.

5. a. Discuss the condition for validity of Born approximation method for spherically symmetric potentials.

   b. Define optical theorem.

019E1230 : ELECTROMAGNETIC THEORY

1. a. State Gauss's law and derive Gauss's law in differential form.
   b. Explain the energy of (i) Point charge distribution and (ii) Continuous charge distribution.

2. a. Discuss electromagnetic induction and Faraday's law of electromagnetic Induction.
   b. Deduce magnetic vector potential equation.

3. a. Describe electromagnetic radiation in one dimension
   b. State and explain pointing theorem.

4. a. Distinguish scalar and vector potentials.
   b. Analyse Gauge transformation

5. a. Formulate the Fresnel's equations when E is perpendicular to the plane of incidence.
   b. Derive the boundary conditions at the surface of discontinuities.