

Dr. B .R. Ambedkar Open University

M.Sc First Year - PHYSICS (2021-2023)

Course -1: Mathematical Physics and Classical Mechanics

ASSIGNMENT-I

Maximum Marks: 15

Minimum marks: 06

Section-A

(Marks:10)

I .Answer any **one** of the following questions in about 30 lines

1. Derive the canonical transformation equation
2. Derive Lagrange's interpolation formula and explain its advantages.

Section-B

(Marks:05)

II. Answer any **one** of the following questions in about 10 lines

1. Find the solution of the Laplace's equation in Cartesian coordinate system
2. Write down the Gauss quadrature formula and explain the terms.

Dr. B .R. Ambedkar Open University

M.Sc First Year - PHYSICS (2021-2023)

Course -1: Mathematical Physics and Classical Mechanics

ASSIGNMENT-II

Maximum Marks: 15

Minimum marks: 06

Section-A

(Marks:10)

I. Answer any **one** of the following questions in about 30 lines

1. Write the properties of Laplace transforms with examples.
2. Write about physical significance of the Strain tensor

Section-B

(Marks:05)

II. Answer any **one** of the following questions in about 10 lines

1. Write the covariant derivative of a mixed tensor of second order.
2. Explain principle of virtual work and D'Alembert's principle.

Dr .B. R. Ambedkar Open University

M.Sc First Year - PHYSICS ((2021-2023)

Course -II: Statistical Mechanics and Quantum Mechanics

ASSIGNMENT- I

Maximum Marks: 15

Minimum marks: 06

Section-A

(Marks:10)

I. Answer any **one** of the following questions in about 30 lines.

1. Explain the Maxwell-Boltzmann statistics with suitable examples.
2. Explain the three ensembles in the Quantum statistical mechanics

Section-B

(Marks:05)

II. Answer any **one** of the following questions in about 10 lines

1. State and explain Liouville's theorem
2. Explain Eigen functions and Eigen vectors

Dr .B. R. Ambedkar Open University

M.Sc First Year - PHYSICS (2021-2023)

Course -II: Statistical Mechanics and Quantum Mechanics

ASSIGNMENT- II

Maximum Marks: 15

Minimum marks: 06

Section-A

(Marks:10)

I. Answer any **one** of the following questions in about 30 lines.

1. Deduce Schrodinger's time independent and time dependent equation.
2. Obtain the solution of wave equation for a principle is one dimensions

Section-B

(Marks:05)

II. Answer any **one** of the following questions in about 10 lines

1. Explain stark effect in Hydrogen atom?
2. Explain Fermi Gorden rule.

Dr. B. R. Ambedkar Open University

M.Sc First Year - PHYSICS (2021-2023)

Course -III: Solid State Physics

ASSIGNMENT-I

Maximum Marks: 15

Minimum marks: 06

Section-A

(Marks : 10)

I. Answer any **one** of the following questions in about 30 lines.

1. Write about important Crystal structures
2. Explain Bragg's law for X-ray diffraction? What information can be obtained using Bragg's law

Section-B

(Marks :05)

II. Answer any **one** of the following questions in about 10 lines.

1. Distinguish between Schottky and Frenkel defects.
2. What are the important characteristics of powder method

Dr.B.R.Ambedkar Open University

M.Sc First Year - PHYSICS (2021-2023)

Course -III: Solid State Physics

ASSIGNMENT-II

Maximum Marks: 15

Minimum marks: 06

Section-A

(Marks : 10)

I. Answer any **one** of the following questions in about 30 lines.

1. Explain the Debye's theory of specific heats. What are its successes and failure?
2. Give the energy level diagram of Ruby laser. Explain.

Section-B

(Marks:05)

II. Answer any **one** of the following questions in about 10 lines

1. Give the experimental method for verification of dispersion curve.
2. Write the relation between dielectric constant and polarizability.

Dr.B.R.Ambedkar Open University

M.Sc First Year - PHYSICS (2021-2023)

Course -IV: Semiconductor Devices Analog and Digital Electronics

ASSIGNMENT-I

Maximum Marks: 15

Minimum marks: 06

Section-A

(Marks :10)

I. Answer any **one** of the following questions in about 30 lines

1. Explain the Open loop and closed loop gains of an Op-Amp
2. Draw a neat diagram of RC couple amplifier and explain its operation

Section-B

(Marks: 05)

II Answer any **one** of the following questions in about 10 lines.

1. How Zener diode is used as a regulator. Explain
2. How the Op-Amp is used as a Differentiator?

Dr. B. R. Ambedkar Open University

M.Sc First Year - PHYSICS (2021-2023)

Course -IV: Semiconductor Devices Analog and Digital Electronics

ASSIGNMENT-II

Maximum Marks: 15

Minimum marks: 06

Section-A

(Marks :10)

I. Answer any **one** of the following questions in about 30 lines

1. Explain the working of a 4 to 1 MUX
2. Explain the operation of RS and JK flip flops along with their truth tables.

Section-B

(Marks: 05)

II Answer any **one** of the following questions in about 10 lines.

1. Draw the circuit diagram of the Wein- bridge oscillator and explain its action
2. Draw the circuit diagram of Half adder and Full adder .Explain their truth tables.