



TAMIL NADU OPEN UNIVERSITY

Chennai - 15
Department of Physics
School of Sciences

HOME / SPOT ASSIGNMENT

Programme Code No	: 181
Programme Name	: B.Sc., Physics
Course Code & Name	: BPHY 31 – Atomic and Solid State Physics :
Batch	3 rd Year (both current and Arriear batch)
No. of Assignments	: One Assignment for Each 2 Credits
Maximum CIA marks	: 25 (Average of Total No. of Assignment)

ASSIGNMENT -I

Answer any one of the questions not exceeding 1000 words

1. Discuss in detail about Somerfield model
2. Derive an expression for LS and JJ coupling
3. State and verify Pauli's exclusion principle

ASSIGNMENT -II

Answer any one of the questions not exceeding 1000 words

1. What is Larmor precession? Deduce Stern-Gerlach experiment
2. Explain the fine structure of D line.
3. Explain the Experimental determination of Anomalous Zeeman Effect.

ASSIGNMENT -III

Answer any one of the questions not exceeding 1000 words

1. State and Explain Bragg's law and List out the applications of Moseley's law
2. Explain the Powder crystal method in detail.
3. What is Compton effect? Derive an expression for Compton shift.

ASSIGNMENT -IV

Answer any one of the questions not exceeding 1000 words

1. State Laws of photo electric emission and What are the applications of Photo electric cells
2. Derive the expression for co ordination number for SC and FCC structure.
3. Derive an expression for packing factor of HCP structure.



TAMIL NADU OPEN UNIVERSITY

Chennai - 15
Department of Physics
School of Sciences

HOME / SPOT ASSIGNMENT

Programme Code No	: 181
Programme Name	: B.Sc., Physics
Course Code & Name	: BPHY 32 – Wave Mechanics and Nuclear Physics
Batch	: 3 rd Year(Both Current and Arriear Batch)
No. of Assignments	: One Assignment for Each 2 Credits
Maximum CIA marks	: 25 (Average of Total No. of Assignment)

ASSIGNMENT -I

Answer any one of the questions not exceeding 1000 words

1. Explain the Davisson and Germer experiment with diagram
2. Derive an relation between wave and group velocity
3. State and explain Heisenberg's Uncertainty Principle

ASSIGNMENT -II

Answer any one of the questions not exceeding 1000 words

1. Derive the expression for Schrodinger equation
2. Derive the expression for Normalized wave function
3. Discuss in detail about Liquid drop model.

ASSIGNMENT -III

Answer any one of the questions not exceeding 1000 words

1. Explain the shell model in detail.
2. State Laws of disintegration and derive an expression for Half-life and mean life period of a nuclei.
3. What is Particle Accelerator? Describe the construction and working of Betatron.

ASSIGNMENT -IV

Answer any one of the questions not exceeding 1000 words

1. Explain the construction and working of Nuclear reactor.
2. Explain the term thermo nuclear reaction with example.
3. What is meant by Nuclear fission? Explain how Chain reaction in Atom bomb



TAMIL NADU OPEN UNIVERSITY

Chennai - 15
Department of Physics
School of Sciences

HOME / SPOT ASSIGNMENT

Programme Code No	: 181
Programme Name	: B.Sc., Physics
Course Code & Name	: BPHY 33 – Basic and Digital Electronics
Batch	: 3 rd Year (Both Current and Arriear Batch)
No. of Assignments	: One Assignment for Each 2 Credits
Maximum CIA marks	: 25 (Average of Total No. of Assignment)

ASSIGNMENT -I

Answer any one of the questions not exceeding 1000 words

1. State and prove Norton and Thevenin's theorem.
2. With circuit diagram, explain forward bias and reverse bias operations of a semiconductor junction diode.
3. What is biasing in transistor amplifiers? Explain the conditions to be fulfilled to achieve faithful amplification in a transistor amplifier.

ASSIGNMENT -II

Answer any one of the questions not exceeding 1000 words

1. Explain the construction and working of Colpitts oscillator
2. Explain the OP- Amp as a adder and subtractor
3. Discuss in detail Single stage amplifier

ASSIGNMENT -III

Answer any one of the questions not exceeding 1000 words

1. Prove the following using the Boolean algebraic theorems:

(a) $A + A \cdot B + A \cdot B = A + B$

(b) $A \cdot B + A \cdot B + A \cdot B = A + B$

(c) $ABC + ABC + ABC + ABC = AB + BC + CA.$

2. what is Don't care conditions. Explain with one example
3. Explain Full adder and Full subtractor in detail with illustration

ASSIGNMENT -IV

Answer any one of the questions not exceeding 1000 words

1. What is J-K flip flop and how it is converted from S-R flip flop?
2. Explain the block diagram of 8085 microprocessor
3. Explain, will serial in - serial out shift registers can be fabricated from D flip flops



TAMIL NADU OPEN UNIVERSITY

Chennai - 15
Department of Physics
School of Sciences

HOME / SPOT ASSIGNMENT

Programme Code No	: 181
Programme Name	: B.Sc., Physics
Course Code & Name	: BPHY 34 – Mathematical Physics
Batch	: 3rd Year (Both Current and Arriear Batch)
No. of Assignments	: One Assignment for Each 2 Credits
Maximum CIA marks	: 25 (Average of Total No. of Assignment)

ASSIGNMENT -I

Answer any one of the questions not exceeding 1000 words

1. Show that velocity dependent constraints are non-integrable constraints.
2. Derive generalized force from the expressions of virtual work and virtual displacement
3. State and Derive the D'Alembert's Principle.

ASSIGNMENT -II

Answer any one of the questions not exceeding 1000 words

1. Discuss in detail about Hamiltonian Principle
2. Derive the Expression for Hamilton's canonical equations of Motion
3. Explain the any one application of Hamiltonian function

ASSIGNMENT -III

Answer any one of the questions not exceeding 1000 words

1. Discuss in detail beta function and Discuss in detail gamma function.
2. Derive the relation between beta and gamma function
3. State and prove Cayley – Hamilton theorem

ASSIGNMENT -IV

Answer any one of the questions not exceeding 1000 words

1. List out the properties of Orthogonal and Unitary Matrices.
2. Derive the expression for Line Integral of a Vector field around an infinitesimal rectangle
3. State and prove Gauss's Divergence theorem