



# DIRECTORATE OF DISTANCE EDUCATION

L.N. Mithila University, Kameshwaranagar, Darbhanga-846008 (BIHAR)

Phone & Fax : **06272-246506** Website : [ddelnmu.ac.in](http://ddelnmu.ac.in), E-mail : [director@ddelnmu.ac.in](mailto:director@ddelnmu.ac.in)

## M.Sc. (Physics) Assignment, December, 2021 Final Year

### COURSE CODE: PHY109

1. Define Polarizability. Derive the expression for Clausius-Mossotti relation from polarizability and dielectric constant.
2. Discuss in detail the vibrations of crystals with monoatomic gases.
3. Write is reciprocal lattice vector? Derive an expression for diffraction condition in terms of reciprocal vector.

### COURSE CODE: PHY110

1. Derive Bethe-Weizsacker binding energy and mass formula.
2. Discuss the effective range theory of low energy n.p. scattering
3. Discuss, in detail, the Fermi theory of beta decay. Explain the neutrino hypothesis.

### COURSE CODE: PHY111

1. What is flow charts? Explain Algorithms and Integer and floating Point arithmetic.
2. What are the various data types available in C? explain them in brief. Write a program in C to point the sum of two numbers.
3. Write short notes on any two of the following:
  - (a) Precision
  - (b) Variables
  - (c) Transcendental equation
  - (d) Subroutines and functions.

### COURSE CODE: PHY113

1. Define the following terms used for OPAMP:
  - (a) Slew rate
  - (b) Unity gain band width
  - (c) Gain error factor
  - (d) CMRR
2. Draw internal block diagram of ZC 8038. Explain its operation. How can it be used to generate waves of 10KHz frequency?
3. Write short notes on any two of the following:
  - (a) ROM
  - (b) RAM
  - (c) CD ROM
  - (d) PROM

### COURSE CODE: PHY114

1. Give the Characteristics of microwave and its application.
2. Discuss the basic of Pulse-width modulation in communication and give a brief account on telemetry.
3. Discuss the geometry and pattern of helical antenna with diagram. Explain the designing of the Yagi-uda antenna.

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**Note: Last date of Assignment submission (By Post only) - 30.12.2021**

**(Postal Address:- Director, Directorate of Distance Education, L.N. Mithila University, Denvi Road, Darbhanga- 846004)**