UNIT-IV

Functions:

Function definition, declaration and prototypes, Call by Value and Call by Reference, Scope Rule of Functions.

UNIT-V

Complex C-Language:

Variables – external, static, register; Recursive functions; multi – dimensional arrays; Pointers and arrays, pointer arrays, Structures – declaring and accessing elements, array of structure, File Input/Output – Create, Open, Read, Write, Delete, Close;

Recommended Books:

1. Yashavant Kanetkar, Let us C

2. Balaguruswamy, Programming in C

BCA – 104: Basic Physics

(This paper must be taught to impart basic knowledge of physics to understand principle behind technologies used in Computer Application. Avoid derivations of equations and problem solving. Question paper must be set accordingly)

UNIT-I

Basic Concepts : Definition of Science, engineering and technology. Importance of Mathematics and Physics in ICT. Units and Dimensions, MKSA Units, Idea of order of magnitude scale of Mass, time and length with examples. Measurement of length using vernier caliper and screw gauge, Newton's laws of motion, physical quantities as scalars and vectors, vector addition, scalar and vector product of two vector, Brief idea of types of forces in nature, torque, rotational motion and moment of inertia, simple examples of conservation of energy, momentum and angular momentum.

Optical instruments: Electromagnetic spectrum, frequency,wavelength and energy associated with electromagnetic radiation, formation of image by lens, eye, Sensitivity of eye to electromagnetic radiation, defects of vision, Brief understanding of telescope, microscope, eye pieces.

UNIT-II

Electrostatics: Concept of Potential and field due to a

charge, Gauss's law; dielectric constant, capacitance of a parallel plate condenser, energy stored in condenser, series and parallel combination of capacitances, types of capacitances used in electronic circuits, rating of capacitances.

Current Electricity: Electric current, Ohm's law, types of resistances and colour codes, Kirchhoff's laws, analysis of simple circuits, Thevenin, Norton and maximum power transfer theorems, principle of potentiometer, magnetic effect of current, field due to circular current loop.

UNIT-III.

Transducers: Thermoelectric effect and thermocouples, thermisters, LDRs, piezo electric effect, speakers and mic, electro chemical effect, primary and secondary cells, batteries. Electrical rating of cells and batteries

Interaction of magnetic field and current: for ce on current carrying conductor, moving coil galvanometer, conversion of galvanometer into ammeter and voltmeter, multimeter.

UNIT-IV

Electromagnetic induction: self and mutual inductances, chocks coil and transformers.

AC circuits: peak and rms voltage and current, power factor, L-R, C-R and L-C-R curcuits with their phase diagrams, series and parallel resonant curcuits.

AC &DC current, understanding electric power distribution in offices and houses, electrical safety,electric fuse, rating of electrical accessories. Importance of good earthing.

Semiconductors: Qualitative description of energy bands, metals, insulators and semiconductors, n and p types of semiconductors, semiconductor p-n junction, metal semiconductor junction, current voltage characteristics of pn junction diode, half wave and full wave rectifiers, Zener diode and voltage regulation, LEDs, photo diode, and solar cell.

UNIT-V

Transistors: Definition, Current in bipolar junction transistor, Amplifier: Brief idea of CE,CC amplifier and its charactersistics, gain indecibels,Frequency vs gain graph, cascading amplifiers, Oscillator: Brief idea about oscillators of different frequency range, Different types of wave forms. Brief introduction to Integrated circuits with scale of integration, Use of MOS and CMOS Transistors.

Lasers: Basic principle, He-Ne and semiconductor lasers, basic concepts of communication using optical fibers.

Brief idea of working and uses of Cathode ray Oscilloscope, Working principle of LCD and plasma devices, UPS, SMPS**.**