

## INFORMATION TECHNOLOGY

### PAPER - I

#### DIGITAL CIRCUITS & COMPUTER H/W

(Paper Code - 0874)

##### UNIT-I (A) Number Systems :

Octal and hexadecimal number, decimal rep., complements, addition, subtraction, multiplication, division, fixed point rep, floating point rep., other binary code-gray code, excess 3 gray, excess-3, 2421, etc. error detection code.

##### (B) Boolean Algebra :

Laws, demorgan's theorem, Simplification boolean expression & logic diagram, positive & negative logic, K-map and simplification of K-map.

##### UNIT-II Combinational circuits :

Half adder, full adder, flip-flop : SR, JK, D,T, sequential circuits : encoder, decoder, multiplexer, shift register, binary counters, BCD adder.

##### UNIT-III Multivibrator circuits :

Monostable, astable, bistable, schmitt trigger, clocked RS, master-slave flip-flop, edge triggered flip-flop, latch.

Integrated circuits :

RTL, DTL, TTL, CMOS, MOS.

##### UNIT-IV (A) Central Processing Unit :

Introduction, register organisation, stack organisation, Instruction formats, Addressing modes.

##### (B) I/O organisation :

I/O interfaces, Data transfer, types and modes, interrupts, DMA, IOP.

##### UNIT-V Memory organisation :

Memory hierarchy, main memory, Auxiliary memory, Associative memory, cache memory, virtual memory, memory management techniques.

##### REFERENCE TEXT BOOK :

- |  |   |                   |
|--|---|-------------------|
| 1. Integrated Electronics                  | - | Millman & Halkias |
| 2. Principle of Electronics                | - | V.K. Mehta        |
| 3. Digital Electronics                     | - | R.P. Jain         |
| 4. Computer System Architecture            | - | Morris Mano       |
| 5. Digital Electronics & Computer Hardware | - | Morris Mano       |

### PAPER - II

(Paper Code - 0875)

UNIT-I Introduction to OOP : Advantages of OOP, the Object oriented approach, characteristics of object oriented languages : object, classes, inheritance, reusability, polymorphism and C++.

B.Sc.-II

(54)

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**UNIT-II** Function : function declaration, calling function, function definition, passing arguments to function, passing constant, passing value, reference argument, returning by reference, inline function, function overloading, default arguments in function.

**UNIT-III** Object and classes, using the classes, class constructor, class destructor, object as function argument, copy constructor, struct and classes, array as class member, static class data, static member functions, friend function, friend class, operator overloading, type of inheritance, base class derive class, access specifier, protected, member function.

**UNIT-IV** Pointers : & and \* operator pointer variables, pointer to pointer, void pointer, pointer and array, pointer and functions, pointer and string, memory management, new and delete, pointer to object, this pointer, virtual function : virtual function, virtual member function, accesses with pointer, pure virtual function.

**UNIT-V** File and stream : C++ streams, C++ manipulators, Stream class, string I/O, char I/O; object I/O, I/O with multiple objects, disk I/O.

**REFERENCE TEXT BOOKS :**

- |                                       |                    |
|---------------------------------------|--------------------|
| 1. Programming in C++                 | - E. Balaguruswami |
| 2. Mastering in C++                   | - Venu Gopal       |
| 3. Object Oriented Programming in C++ | - Robert Lafore    |
| 4. Let us C++                         | - Y. Kanetkar      |

**PRACTICAL WORK**

1. The sufficient Practical work should be done for understanding the paper 2.
2. At least five programs on each unit from unit 2 to unit 5 be prepared.
3. All practical works should be prepared in form of print outs and be valued while practical examination.

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