PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(First Semester)

Branch – **INFORMATION TECHNOLOGY**

FUNDAMENTALS OF DIGITAL COMPUTERS

Time: Three Hours   Maximum: 50 Marks

SECTION-A (5 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (5 x 1 = 5)

1 Which of the following binary numbers could be referred as nibble?
   (i) 11010   (ii) 1001
   (iii) 100   (iv) 10

2 The basic building block of sequential logic circuit is-------
   (i) OR gate   (ii) NAND gate
   (iii) Flip flop   (iv) AND gate

3 A set of flip flops integrated together is called---------
   (i) Counter   (ii) Adder
   (iii) Register   (iv) Accumlator

4 In -----------------the operand is specified in the instruction itself
   (i) Immediate addressing   (ii) Register mode
   (iii) Implied addressing   (iv) Register indirect

5 ---------memory is sometimes used to increase the speed of
   Processing by making current programs and data available to CPU at a rapid
   rate
   (i) Backup   (ii)Auxiliary
   (iii) Main   (iv) Cache

SECTION - B (15 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks   (5 x 3 = 15)

6 a Determine the equivalent decimal system for the binary system 112 base 2.
                              OR
   b Mention the different types of Binary codes?

7 a list out the advantages of K-Map method.
                              OR
   b Show the logic diagram of SR flip-flop with NAND gate.

8 a What are the four types of Micro operations?
                              OR
   b What is Bus and Bus transfer with a neat block diagram?

9   a   Write short notes on Register
<div align="center">OR</div>
    b   What are the four ways of addressing?

10 a   List out the function of Direct Memory Access
<div align="center">OR</div>
    b   What is the main aim of Virtual memory Organization?

<div align="center">

SECTION - C (30 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 6 = 30)
</div>

11 a   Convert i) Octal $(478)_8$ to Hexadecimal ii) $(001100101101110)_2$ to Octal
<div align="center">OR</div>
    b   What are the three basic properties of Boolean algebra?

12 a   Write a short notes on Multiplexers.
<div align="center">OR</div>
    b   Describe about the operation of a T flip flop and its application.

13 a   Give a short notes on Arithmetic Micro operations.
<div align="center">OR</div>
    b   What is memory transfer, and Why is it important in computer systems?

14 a   what is a register organization, and why it is important?
<div align="center">OR</div>
    b   Discuss about Addressing modes.

15 a   Point out and detail about DMA.
<div align="center">OR</div>
    b   Enumerate Main memory and Associative memory.

<div align="center">Z-Z-Z   END</div>