UG/Integrated Even Semester Examination, 2025

COMPUTER SCIENCE

(6th Semester)

Course No.: MCSC-603

(System Software)

Full Marks: 70

Pass Marks: 28

Time: 3 hours

The figures in the right margin indicate full marks for the question.
Answer any five questions selecting one from each unit.

UNIT-I

1. (a) Differentiate between SIC and SIC/XE machine. 4

   (b) Explain the different instruction sets of SIC/XE machine with suitable example. 5

   (c) What do you mean by system software? Explain different data format of IBM 360/370. 5

2. (a) Instruction format of IBM 360/370 with suitable example. 7

   (b) Explain General Machine Structure of IMB 360/370 with a neat diagram. 7

UNIT-II

3. (a) What do you understand by an Assembler. Write and explain the various data

structure used in Pass 1 and Pass 2 assembler module. 2+5=7

(c) Write the difference between the following two statements. 4

FIV	DC	F'6'
TEMP	DS	1F

(c) Write the various steps to be followed by designer to design an assembler. 4

4. (a) How LTORG Assembler directive is helpful while writing Assembly language program. 2

(b) Differentiate between EXTREF and EXTDEF with suitable example. 4

(c) Draw and explain the flow chart of PASS 2 Assembler. 8

UNIT-III

5. (a) Define the term "MACRO". Write the advantages and limitations of using MACRO in Assembly Language Programming. 1+4=5

(b) Write the database specification for pass 1 and pass 2 of macro processor. 6

(c) What do you understand by MDT and MNT? 3

6. (a) Explain the terms macro definition, macro call, macro expansion with syntax and example. 6

(b) Write the four basic tasks that any macro processor must perform. 2

(c) Draw and explain the flow chart for "READ" function used for macro expansion. 6

UNIT-IV

7. (a) Define Loader. Write the basic function of Loader. 3

(b) Explain different types of cards used in Direct Linking Loader. 6

(c) Write a note on Design of an Absolute Loader. 5

8. Write short notes on the following :

(i) Compile and Go Loader 4

(ii) Subroutine Linkages 5

(iiii) Dynamic Loading 5

UNIT-V

9. (a) What do you understand by loop optimization? What are the different techniques used for loop optimization. 5

(b) Explain different phases of compiler with neat diagram. 9

10. (a) Define compiler. Explain the intermediate phase of compiler with an example. 6

(b) Write short notes on the following : 8

(i) Lexical analysis phase

(ii) Code Generation

****