



**SHRI ANGALAMMAN COLLEGE OF ENGINEERING &  
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(An ISO 9001:2008 Certified Institution)  
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**CS 1304- SYSTEM SOFTWARE  
UNIT -I  
FUNDAMENTALS  
PART-A (2 MARKS)**

1. Define system software.
2. Give some applications of operating system.
3. Define compiler and interpreter.
4. Define loader.
5. What is the need of MAR register?
6. Draw SS instruction format.
7. Give any two differences between base relative addressing and program.
8. Define indirect addressing.
9. Define immediate addressing.
10. List out any two CISC and RISC machine.
11. What is the result of the following statement?
12. What is the result of the following statement?
13. What is the name of X and L register in SIC machine and also specify its use.
14. What are the instruction formats used in SIC/XE architecture?  
Give any one format.
15. Consider the instructions in SIC/ XE programming.
16. What is the difference between the instructions  
LDA # 3 and LDA THREE?
17. Differentiate trailing numeric and leading separate numeric.
18. What are the addressing modes used in VAX architecture?
19. How do you calculate the actual address in the case of register indirect with immediate index mode?
20. Write the sequence of instructions to perform the operation  
 $BETA = ALPHA + 1$  using SIC instructions.
21. Write the sequence of instructions to perform the operation  
 $BETA = ALPHA + 5$  using SIC/XE instructions.
22. What is the use of TD instruction in SIC architecture?

**PART-B**

1. Explain the SIC machine architecture. (16)
2. Explain the SIC/XE machine architecture. (16)
3. Explain the VAX machine architecture. (16)

4. Explain the various addressing modes and instruction formats of SIC/XE machine. (16)
5. Write a program for Sample indexing and looping operation in SIC as SIC/XE machine. (16)

## **UNIT –II ASSEMBLERS**

### **PART-A (2-MARKS)**

1. Define the basic functions of assembler.
2. What is meant by assembler directives? Give example.
3. What is a forward reference?
4. What are the three different records used in object program?
5. What is the need of SYMTAB (symbol table) in assembler?
6. What is the need of OPTAB (operation code table) in assembler?
7. What are the symbols defining statements generally used in assemblers?
8. Define re locatable program.
9. Differentiate absolute expression and relative expression.
10. Write the steps required to translate the source program to object program.
11. What is the use of the variable LOCCTR (location counter) in assembler?
12. Define load and go assembler.
13. What are the two different types of jump statements used in MASM assembler?
14. What are the uses of base register table in AIX assembler?
15. Differentiate the assembler directives RESW and RESB.
16. Define modification record and give its format.
17. Write down the pass numbers (PASS 1/ PASS 2) of the following activities that occur in a two pass assembler.
18. What is meant by machine independent assembler features?
19. How the register to register instructions are translated in assembler?
20. What is meant by external references?
21. Define control section.
22. What is the difference between the assembler directive EXTREF and
23. Give the general format of defines record.
24. Give the use of assembler directive CSECT and USE.
25. What is the use of the assembler directive START?

### **PART-B**

1. Explain in detail about pass1 assembler algorithm with example. (16)
2. Explain in detail about pass2 assembler algorithm with example. (16)
3. Explain Program relocation assembler features with an example. (16)
4. Explain the machine independent assembler features. (16)
5. Explain one pass assembler with an example. (16)

**UNIT –III**  
**LOADERS AND LINKERS**  
**PART-A (2-MARKS)**

1. What are the basic functions of loaders?
2. Define absolute loader.
3. What is meant by bootstrap loader?
4. What are relative (re locative) loaders?
5. What is the use of modification record?
6. What are the 2 different techniques used for relocation?
7. Relocation bit method.
8. Define bit mask.
9. What is the need of ESTAB?
10. What is the use of the variable PROGADDR?
11. Write the two passes of a linking loader.
12. Define automatic library search.
13. List the loader options INCLUDE &DELETE.
14. Give the functions of the linking loader.
15. Give the difference between linking loader and linkage editors.
16. Define dynamic linking.
17. Write the advantage of dynamic linking.
18. What is meant by static executable and dynamic executable?
19. What is shared and private data?
20. Write the absolute loader algorithm.

**PART - B**

1. Explain the following basic loader functions
  - a. Design of an Absolute loader. (8)
  - b. Bootstrap loader. (8)
2. Explain program linking machine independent loader features with an example. (16)
3. Explain the algorithm and data structures for a linking loader (16)
4. Explain the following terms.
  - a. Linkage editors. (8)
  - b. Dynamic linking. (8)
5. Explain in detail about MS-Dos linker. (16)

**UNIT IV**  
**MACRO PROCESSORS**  
**PART –A (2-MARKS)**

1. Define macro processor.
2. What do macro expansion statements mean?
3. What are the directives used in macro definition?
4. What are the data structures used in macro processor?
5. Define conditional macro expansion.
6. What is the use of macro time variable?
7. What are the statements used for conditional macro expansion?
8. What is meant by positional parameters?
9. Consider the macro definition.
10. What are known as nested macro call?
11. How the macro is processed using two passes?
12. Give the advantage of line by line processors.
13. What is meant by line by line processor?
14. Give the advantages of general-purpose macro processors.
15. What is meant by general-purpose macro processors?
16. What are the important factors considered while designing general purpose macro processors?
17. What is the symbol used to generate unique labels?
18. How the nested macro calls are executed?
19. Mention the tasks involved in macro expansion.
20. How to design the pass structure of a macro assembler?

**PART –B**

1. Explain in detail about Macro processor algorithm and data structures. (16)
2. Explain conditional Macro expansion with example. (16)
3. Explain the following machine independent macro features.
  - a. Concatenation of macro parameters. (6)
  - b. Generation of unique labels. (6)
  - c. Keyword macro parameters. (4)
4. Explain in detail about MASM macro processor. (16)
5. Explain ANSI C macro processor. (16)

**UNIT V**  
**SYSTEM SOFTWARE TOOLS**  
**PART –A (2-MARKS)**

1. Define interactive editor.
2. What are the tasks performed in the editing process?
3. What are the three categories of editor's devices?
4. What is the function performed in editing phase?
5. Define Locator device.
6. What is the function performed in voice input device?
7. What are called tokens?
8. Name some of typical tokens.
9. What is meant by lexeme?
10. Mention the main disadvantage of interpreter.
11. What is meant by code optimization?
12. What is error handler?
13. Name some of text editors.
14. What for debug monitors are used?
15. Mention the features of word processors.
16. What are the phases in performing editing process?
17. Define traveling phase.
18. Filtering phase.
19. Editing phase
20. Define user interface.
21. Define input device.
22. Define output devices.
23. What are the methods in Interaction language of a text editor?
24. Define interactive debugging systems.
25. Define editor structure.
26. Give the components of editor structure.
27. What are the basic types of computing environments used in editor's functions?

**PART –B**

1. Explain the Editor structure with a neat diagram. (16)
2. Write short notes on
  - a. Interactive debugging systems (8)
  - b. Write short notes on Text editors. (8)
3. Write short notes on
  - a. User Interface Criteria. (8)
  - b. System software tools with example. (8)
4. Write short notes on
  - a. Bootstrap loaders. (8)
  - b. Machine dependent code optimization techniques. (8)