QUESTION BANK

Sub.Code : CS1304 **Semester : VI**

Sub.Title : System Software

Unit – I

FUNDAMENTALS

PART – A

1. Define System Software.
2. Define data Format.
3. What is instruction set?
4. What is direct addressing mode and indirect addressing mode?
5. Differentiate between Assembler and Interpreter.
6. What is little Endian and Big Endian byte ordering?
7. What is the purpose of register in a system?
8. List the types of registers used in a system.
9. What is the size of the memory in a SIC and SIC/XE machines?
10. What are the instruction formats of SIC/SC?
11. What are the types of addressing modes in SIC and SIC/XE machines?
12. How input and Output operations are performed in PowerPC architecture?
13. What the types of I/O instructions available are in SIC machines?
14. What is Format3 and Format 4 instructions in SIC/XE machine?
15. Define the base relative and program counter relative addressing mode of SIC/XE machine.
16. List the units of Van Newman architecture.
17. Illustrate how input and output operations are performed in SIC.
18. Give the instruction format of SIC/XE machine.
19. Define simple addressing.
20. What is Supervisor call?
21. What is Condition code?

Part – B

1. List the salient features of hypothetical machine.
2. Discuss about SIC architecture.

3. Discuss about SIC/XE architecture.
4. Compare and Contrast SIC, SIC/XE with programming examples.

Unit-II

ASSEMBLERS
PART-A

1. Define Assembler.
2. What are Assembler directives or pseudo-instructions?
3. Give some examples for assembler directives.
4. What are functions required in translation of source program to object code.
5. What is forward reference?
6. What are the tree types of records in a simple object program format?
7. What are the information present in a Header record or Give the format of header record?
8. What are the information present in a Text record?
9. What are the information present in a End record?
10. What are the information present in a Modification record?
11. What are the information present in a Define record?
12. What are the information present in a Refer record?
13. What are functions performed in Pass 1 by a two pass assembler?
14. What are functions performed in Pass 2 by a two pass assembler?
15. Name the data structures used by an assembler.
16. What is OPTAB?
17. What is SYMTAB?
18. What is LOCCTR?
19. What is the information present in intermediate file?
20. Write down the pass number(PASS1/PASS 2) of the following activities that occur in a two-pass assembler.
21. What is multiprogramming?
22. Name the addressing modes used for assembling register-to-memory instructions?
23. What is the use of BASE and NOBASE?
24. What is Register to memory instructions?
25. What is Register to register instructions?
26. What is the advantage of register-to-register instructions?
27. What is a relocatable program?
28. what is relocation?
29. Name the two methods of performing relocation?
30. What is the use of modification record?

31. What are the machine independent assembler features?
32. What is literal?
33. What is a literal pool?
34. What does an assembler perform when it encounters LTORG assembler directive?
35. Write a program to load the program counter address into the base register using literal.
36. What is LITTAB or What is basic data structure needed to handle literal?
37. Name the symbol defining statements.
38. What is the use of the symbol defining statement EQU?
39. What is the use of the symbol defining statement ORG?
40. What are the two types of expression?
41. What is relative expression?
42. What is absolute expression?
43. List the types of Assemblers.
44. How assemblers handle forward reference instructions?
45. List the types of one pass Assemblers.
46. What is load-and-go assembler?
47. What is multi-pass assembler?
48. What is MASM assembler?
49. What is near jump and far jump?
50. What are the functions of assembler.

PART-B

1.Explain the data structure used in the design of assembler.
2. Explain the algorithm for pass1& pass 2 of an assembler.
3. Explain the machine independent features of an assembler.
4. Explain the machine dependent features of an assembler.
5. Explain the different instruction formats & sets & addressing modes used in the assembler.
6. Explain the design of one pass assembler.
7. Explain the design of multi pass assembler.
8. Discuss about MASM assembler.

UNIT-III
LOADERS AND LINKERS
PART-A

1. What is a loader or absolute loader?
2. What is a bootstrap loader?

3. Write the algorithm for an absolute loader.
4. What are the functions of an absolute loader?
5. What are the disadvantages of an absolute loader or machine dependent loader?
6. What is a relocating or relative loader?
7. What is a bit mask?
8. What is the purpose of the relocation bit in object code of relocation loader or what is a relocation bit?
9. Define Linker.
10. Define Linking.
11. What is control section?
12. What is external reference?
13. Define External symbol.
14. What is EXTDEF?
15. What is EXTREF?
16. What are data structures needed for linking loader?
17. What is the use ESTAB?
18. What is reference number mechanism?
19. What is the advantage of reference number mechanism?
20. What is a load map?
21. What is automatic library call or library search?
22. Mention the usage of the directory by a loader?
23. What are the functions of Pass 1 and Pass 2 of an MS-Dos linker?

PART- B

1. Discuss briefly about absolute loader.
2. Discuss about Bootstrap Loader.
3. Explain Automatic Library Search.
4. Discuss about Linkage editor.
5. Discuss about Dynamic Linking.
6. Give the algorithm for pass 1 and pass 2 of a loader.
7. Discuss machine independent loader features.
8. Discuss machine dependent loader features.
9. Explain about MS-DOS Linker.

UNIT-IV
MACRO PROCESSORS
PART-A

1. What is a macro instruction?

2. What is a macro?
3. What are the activities of the macro processing?
4. How does the macro processor help the programmer?
5. What are the two main assembler directives use with macro definitions?
6. What is the logic behind the two-pass macro processor?
7. What is the restriction imposed on a two-pass macro assembler?
8. What are the three main data structures involved in a macro processor?
9. What does the macro definition table contain?
10. What is the purpose of the ARGTAB?
11. How are the ambiguities in parameters avoided in macro processor?
12. Expand the following.
a. SUM MACRO &ID
b. LDA X&ID->1
c. ADD X&ID->2
d. ADD X&ID->3
e. STA X&ID->5
f. MEND
SUM A
1. What is meant by conditional macro expansion?
2. Define positional parameters.
3. Draw the structure of the ARGTAB.
4. What should be done for recursive macro expansion if the chosen programming language does not support recursion?
5. What is a general purpose macro processor?
6. What are the advantages of a general purpose macro processor?
7. What are the disadvantages of a general purpose macro processor?
8. What is a pre-Processor?
9. What is a line-by-line macro processor?
10. What are the advantages of line-by-line macro processor?
11. How are the macro definitions and expansions handled in ANSI C languages?
12. Give any two examples of macro definitions in ANSI C.
13. In the following macro definition,
#define ABSDIFF(X,Y)[(X)>(Y)?(X)-(Y) : (Y)-(X)]
Give the expansion for ABSDIFF (I+1,j-5).
1. Explain how macro expansions are controlled in ELENA macro processor.
2. For the following macro definitions.
#define DISPLAY (EXPR) printf(#EXPR "=%d\n",EXPR)
Give the expansion for the macro invocation DISPLAY (I+J+1)
1. Can there be nested macros in ANSI C? Give an example.
2. Give an example for conditional compilation in ANSI C.

3. Define macro.
31. What is meant by concatenation of macro parameter?
32. What is meant by macro time variable?
33. What is conditional macro expansion?
34. State how positional parameters and arguments are related in a macro processor?
35. What is meant by expanding the macro?
36. Give an example for a simple macro-time conditional structure.
37. Give two examples of macro definition.
38. What is meant by line-by-line macro processor?
39. What are the data structures used in a macro processor?
40. List the difference between SIC Macro Processor and MASM Macro Processor.

PART – B

1. Write the algorithm for Macro processor.
2. Write the machine independent features macro processor.
3. Write about recursive macro expansion.
4. Discuss about MASM macro processor.
5. Discuss about ANSI C Language.
6. Discuss about conditional Macro.

UNIT –V
SYSTEM SOFTWARE TOOLS
PART-A

1. What is an interactive editor?
2. What is a document?
3. What are the four tasks related to document editing?
4. What is meant by filtering?
5. Define formatting the document.
6. What is editing?
7. What are the elements on which editing is done?
8. What does the conceptual model of the editing system represent?
9. What are the two fundamental types of editors?
10. What is a data tablet?
11. What is the oldest editor interface used?
12. How is the typing of commands made easy with editors?
13. What are the semantic routines that encompass the editor structure?
14. How is the editing area selected in an editor?
15. Can the current editing pointer altered?

16. What is the function of the traveling component?
17. What is the name of the filter invoked when the edit command is issued?
18. What is the purpose of the editing filter?
19. How is the starting point of the editing area selected for viewing?
20. Draw the relationship between the viewing and editing buffer.
21. How doest the editor work with a non intelligent terminal?
22. How does the editor work with an intelligent workstation?
23. What is the disadvantage of editing in a non-intelligent terminal?
24. What are the facilities provided by an interactive debugging system?
25. What are the requirements of an interactive debugging system?
26. What is meant by execution sequencing?
27. What is a break point?
28. What is the status of the program execution once break point is reached?
29. What is meant by tracing?
30. What is meant by trace back?
31. Name some optimization followed in an editor/
32. How does the code rearrangement affect the debugger?
33. What is the important requirement of an interactive debugger?
34. What are the other parts of the system to which the debugger should be related with?
35. What are the desired features of the user interface?
36. What is the required feature of command formats in a user interface?
37. What is the desired feature of the command language in a user interface?
38. How is the assistance provided for user interface?
39. What is the needed feature of menus in a user interface?
40. What are tasks of document editing process?
41. What is the function of command language processor?
42. What is a text or string device?
43. What are locator devices?
44. What are voice-input devices?
45. What is an interactive debugging system or debugging system?
46. What is execution sequencing?
47. What is tracing?
48. What is trace back?

PART –B

1. Discuss about editors.
2. Discuss about Interactive Debugging Systems.