B.E. / B. TECH. DEGREE EXAMINATIONS: APRIL/MAY 2009

Fourth Semester

U07CS402 SYSTEM SOFTWARE

(Common to **Computer Science and Engineering** and **Information Technology** Branches)

Time: Three Hours   **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (20 x 1= 20 Marks)

1. What is the length of each register in SIC architecture?

   A. 12   B. 24   C. 32   D. 64

2. The maximum memory available on a SIC/XE system is

   A. 2^{10} bytes   B. 2^{20} bytes   C. 2^{30} bytes   D. 2^{40} bytes

3. What is the name of one half of VAX virtual address space contains the operating system?

   A. Process space   B. Cache memory space   C. Virtual address space   D. System space

4. In SIC, the contents of X register are used to represent as _____.

   A. (X)   B. [X]   C. "X"   D. {X}

5. In simple assembler which data structure is used to lookup mnemonic operation codes and translates them to their machine code.

   A. OPTAB   B. SYMTAB   C. STACK   D. Lookup Table

6. In simple SIC Assembler, the object program format contains three types of records such as _____.

   A. Header, Tail, Bytes   B. Header, Text, Tail

   C. Header, Tail, End   D. Header, Text, End

7. In SIC/XE program, immediate operands are denoted with the prefix ____

   A. @   B. !   C. #   D. +

8. In machine independent assembler, the value of constant operand as a part of the instruction called as _____

   A. Symbol   B. Constant value   C. Literals   D. Labels

9. Which type of Absolute loader is executed at first, when a computer is turned ?

   A. Relocating loader   B. Relative loaders   C. Linking loader   D. Bootstrap loader

10. The Bootstrap loader loads the operating system starting at address _____.

    A. 40   B. 60   C. 80   D. 100

11. _____ contains the starting address assigned to the control section currently being scanned by the loader.

    A. PROGADDR   B. CSADDR   C. SYMTAB   D. ESTAB

12. _____ uses facilities of the operating system to load and link subprograms at the time they are first called.

    A. Linkage editors   B. Bootstrap loaders C. Dynamic linking   D. Linking loaders

13. A macro invocation statement is often referred to as _____

    A. Macro statement B. Macro instructions C. Macro call D. Macro execution.

14. Labels used within the macro body begin with the special character _____.

    A. #   B. $ C. =   D. @

15. The macro definitions themselves are stored in a _____.

    A. DEFTAB   B. NAMTAB   C. SYMTAB   D. ARGTAB

16. In a macro prototype, each parameter name is followed by an equal sign, which identifies a _____.

    A. Positional parameter B. Keyword parameter C. &BUFADR D. &INDEV

17. A computer program that allows a user to create and revise a target document called as _____.

    A. Compiler   B. Loader   C. Linker   D. Interactive editor

18. _____ provides an easily understood abstraction of the target document and its elements, with a set of guidelines.

    A. Perceptual model B. Logical Model C. User Model D. Conceptual Model.

19. _____ component takes the idealized view from the viewing component and maps it to a physical output device in the most efficient manner.

    A. Display component

    B. Editing component

    C. Traveling component

    D. Viewing component

20. Which can be used to track the flow of execution logic & data modifications?

    A. Debugging   B. Breakpoints   C. Tracing   D. Traceback

PART B (5 x 16 = 80 Marks)

21. (a) Explain in detail the architecture of a SIC /XE machine. (16)

(OR)

21. (b) Explain briefly about the Pentium Pro Architecture. (16)

22. (a) (i) State and explain the PASS I Algorithm of an Assembler. (10)

     (ii) Write briefly about the different record types of Simple SIC Assembler object program. (6)

(OR)

22. (b) (i) Explain briefly about the Multi-Pass Assembler with an example. (12)

     (ii) Write down the different Data Segments registers used inside the MASM Assembler. (4)

23. (a) Describe briefly about a Simple Bootstrap Loader for SIC/XE. (16)

(OR)

23. (b) (i) With diagrams, explain how loading and calling of a subroutine is done using Dynamic linking. (12)

     (ii) List out the different record types and its description of MS-DOS linker. (4)

24. (a) What are the different data structures used by a Macro processor? Explain. (16)

(OR)

24. (b) (i) Explain briefly about the MASM Macro Processor with an example. (12)

     (ii) Write in detail about the Concatenation of Macro Parameters. (4)

25. (a) Explain about the different components of an editor structure with its block. diagram. (16)

(OR)

25. (b) Discuss in detail about an interactive debugging system. (16)

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