KUMARAGURU college of technology
character is life

Register Number: ……..

B.TECH DEGREE EXAMINATIONS: MAY 2015

(Regulation 2009)

Third Semester

INFORMATION TECHNOLOGY

CSE106: System Software

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. If the exponent has the value e and fraction has value f, the floating point number in SIC is represented as

   a) $f * 2^{(e - 1024)}$ b) f * (e – 1024)

   c) $f * 10^{e}$ d) $f * 2^{e}$

2. Match

   a) register indirect with index — i) TA= (PC) + disp
   b) PC relative — ii) LDA #9
   c) immediate — iii) J @RETADDR
   d)indirect — iv) TA= (Reg_1)+(Reg_2)

   a) a-i,b-ii,c-iii,d-iv b) **a-iv,b-i,c-ii,d-iii**

   c) a-ii,b-i,c-iv,d-iii d) a-iv,b-iii,c-ii,d-i

3. . Match activities to the passes

   a. Object code generation. i) pass 1
   b. Literals added to literal table. ii) pass 2
   c. Listing printed.
   d. Address resolution of local symbols.

   a) a-i,b-ii,c-i,d-ii b) **a-ii,b-i,c-ii,d-i**

   c) a-ii,b-ii,c-i,d-i d) a-ii,b-i,c-i,d-ii

4. ._____ is the process of modifying the addresses used in the address sensitive instructions of the program such that the program can execute correctly from a designated area of the memory.

   a) loading b) linking

   c) relocation d) execution

5. . _____ performs the linking function, produces information about allocation and writes this information along with the program code in a file

   a) linking loader b) dynamic loader

c) BOOTSTRAP loader d) linkage editor

6. _____ is the beginning address in memory where the linked program is to be loaded
   a) CSADDR b) STADDR
   c) PROGADDR d) BEGIN
7. Attributes of _____ arguments exist only while it is expanded
   a) Function b) Macro
   c) Symbol d) literal
8. _____ can produce an expanded version of the source program, which is then used as input to a compiler.
   a) Preprocessor b) Assembler
   c) linker d) editor
9. _____ is a software tool that collects information regarding the execution behavior of a program
   a) debugger b) profiler
   c) editor d) language processor
10. _____ is a software tool used for tracing, traceback, unit test and execution sequencing
    a) debugger b) profiler
    c) editor d) language processor

PART B (10 x 2 = 20 Marks)

11. When addressing programs written using the assembly language of SIC / XE, the assembler may need to use PC - relative mode even when the BASE directive is in effect. Why?
12. Write a program for SIC machine to copy 11 byte string from one location to another
13. What is the need for an assembler directive?
14. What is a common use of ORG?
15. Compare linking loader and linkage editor.
16. What is function of MS-DOS LINK?
17. What is meant by macro time variable?
18. Normally, the definition of a macro must precede any expansions of it. If we eliminate that restriction, what modifications do we have to make to the assembler?
19. How is viewing buffer mapped with windows?
20. List out the different forms of editor and hint on each editor form.

PART C (5 x 14 = 70 Marks)

21. a) i)Explain the architecture of SIC/XE machine in detail (9)

		ii) Write SIC code to add two arrays ALPHA and BETA and store in array GAMMA	(5)
		(OR)	
	b)	i) Explain in detail UltraSPARC architecture with suitable examples	(9)
		ii) Compare and contrast RISC and CISC architectures	(5)
22.	a)	i)Explain one-pass assembler functions with example program	(9)
		ii) Explain the forward reference problem in one pass assembler.	(5)
		(OR)	
	b)	i) List the features of the assemblers.	(5)
		ii) Discuss in detail about MASM assembler.	(9)
23.	a)	Explain algorithm and data structures used for a linking loader in detail.	
		(OR)	
	b)	i) Explain dynamic linking in detail.	(7)
		ii) Explain machine independent loader features in detail.	(7)
24.	a)	Explain in detail macro processor algorithm and data structures	
		(OR)	
	b)	Explain about conditional macros with examples	
25.	a)	Explain in detail the structure of the compiler. Brief on the functionality of each phase	
		(OR)	
	b)	Explain in detail the structure of an editor with a figure	

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