B.E. Computer Technology Fifth Semester CT504 - System Programming

P. Pages : 2 Time : Three Hours			* 1 3 0 9 * GUG/W/18/ Max. Mark	
	Note	es: 1 2 3 4	All questions carry equal marks. Due credit will be given to neatness and adequate dimensions. Assume suitable data wherever necessary. Illustrate your answers wherever necessary with the help of neat sketches.	
1.	a)	Diffe i) ii)	rentiate between:- Open subroutine and closed subroutine. Pure procedure and Impure procedure.	8
	b)	Expl	ain evolution of operating system.	8
			OR	
2.		Write i) ii)	e short notes on: Operating system user viewpoint : Functions Operating system user viewpoint : Batch Control Language	16
3.	a)	Wha	are the advantages and disadvantages of assembly language over machine language?	3
	b)	Draw	a microflowchart of ADD instruction.	5
	c)	Expl i) iii)	ain the following instructions of 1BM-360 with the help of syntax and examples. DS ii) BR 14 END iv) LTORG.	8
			OR	
4.	a)	a) For the following program segment, show the equivalent mnemonic machine language and determine the value placed in register 1 by the instruction LH 1, DATA2 \downarrow		
			MYPRG START BALR 15,0 USING *,15	

	BALR	15,0
	USING	*,15
	LR	10, 15
	USING	*, 10
	LH	1, DATA 2
	BR	14
	\downarrow	
DATA 1	DC	H '1'
DATA 2	DC	Н '2'
DATA 3	DC	Н '3'
	END	

b) Write syntax, example & memory representation of RX, RS and SI types of instructions of **6** IBM - 360.

5.	a)	Why 2 passes are needed by IBM-360 assembler? Explain with the help of example.			8
	b)	Draw and explain pass-1 of IBM-360 ass	embl	er in detail.	8
			0	R	
6.	a)	What are the basic tasks that must be performed by a macro-processor? How do you define macro in a program? Give a general format.			6
	b)	Draw and explain flowchart of macro instruction defining macros alongwith READ flowchart.			10
7.		Write short notes on the following: i) Subroutine Linkages iii) Dynamic Loading	ii) iv)	Overlays Dynamic Linking	16
			0	R	
8.	a)	Explain the formats and roles of GEST and LESA in the design of Direct Linking Loader.			6

b) For the following program segments, write contents of ESD, TXT and RLD cards **10** generated by the assembler of IBM-360.

Relative Address		Sample Progr	am (Source Deck)
0	PG1	START	
		ENTRY	PG1ENT1, PG1ENT2
		EXTRN	PG2ENT1, PG2
20	PG1ENT1		
30	PG1ENT2		
40		DC	A(PG1ENT1)
44		DC	A (PG1ENT2 + 15)
48		DC	A(PG1ENT2-PG1ENT1-3)
52		DC	A(PG2)
56		DC	A(PG2ENT1+PG2-PG1ENT1+4)
		END	
0	PG2	START	
	×	ENTRY	PG2ENT1
		EXTRN	PG1ENT1, PG1ENT2
16	PG2ENT1		
24		DC	A(PG1ENT1)
28		DC	A(PG1ENT2+15)
32		DC	A(PG1ENT2-PG1ENT1-3)
		END	

9.	a)	What is a device driver? What are various types of Unix Device Driver?	8		
	b)	What are the steps to install device driver in Windows operating system?	8		
		OR			
10.	a)	List & draw various data structures used by Lexical Analysis phase of compiler.	10		
	b)	Write a short note on Lex Tool.	6		
