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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2022 (2019 Scheme)

Course Code: CST 305

Course Name: SYSTEM SOFTWARE

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		Distinguish between interpreter and compiler.	3
2		List any three registers available in SIC machine along with their purpose	3
3		List out the basic functions of Assemblers	3
4		Write an SIC program to swap the values of **ALPHA** and **BETA**	3
5		With an example explain any two symbol defining statements?	3
6		Define a program block.How it is created?	3
7		List the basic functions of a loader	3
8		Define a modification record along with its structure	3
9		Illustrate the concept of macro definition with an example	3
10		What are the two parts of a device driver?	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Write notes on **SIC** machine architecture	8
	b)	What are assembler directives? List any four assembler directives in SIC machine.	6
12	a)	Elucidate the architecture of **SIC/XE** machine	8
	b)	Compare the features of Standard SIC and SIC/XE architecture	6

Module -2

13	a)	Write a sequence of instructions for SIC/XE to divide BETA by GAMMA, setting ALPHA to the integer portion of the quotient and DELTA to the remainder. Use register to-register instructions to make the calculation as efficient as possible.	5

b) Illustrate the use and structure of three records used in object program 3

c) Explain the data structures used and their purposes in a two-pass assembler 6

14 a) Suppose ALPHA is an array of 100 words. Write SIC/XE program to set all array elements to zero. 6

b) Design an algorithm for pass 1 operations of a two pass assembler for SIC architecture. 8

Module -3

15 a) Write short notes on MASM assembler 7

b) Employ the following code to explain the concept of multipass assembler 7

1	A	EQU	B/2
2	B	EQU	C-D
3	E	EQU	D-1
4	D	RESB	4096
5	C	EQU	*

16 a) Outline in detail **Load-and-go** Single Pass Assembler Algorithm 7

b) What are control sections? Illustrate with an example, how control sections are used and linked in an assembly language program. 7

Module -4

17 a) Write notes on machine independent loader features. 8

b) Which are the data structures used during the operation of a linking loader? Write the algorithm for Pass 2 of a Linking Loader 6

18 a) Give the algorithm for an absolute loader 6

b) Write notes on the different loader design options 8

Module -5

19 a) Explain the working of One pass Macro Processor along with algorithm 6

b) Explain the types of macro with example 8

20 a) Write notes on text editor 7

b) Discuss the features of device drivers 7

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