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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (R, S) / S3 (PT) (R, S) Examination December 2023 (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		Explain any three addressing modes in SIC/XE.	3
2		Describe any three assembler directives used in SIC.	3
3		Explain literal. How is a literal handled by an assembler?	3
4		With an example explain forward reference?	3
5		Explain the usage of EQU statement with an example.	3
6		Explain the working of a one pass assembler.	3
7		Describe the design of an absolute loader.	3
8		Explain automatic library search.	3
9		Illustrate unique labels generation in macro expansion?	3
10		Describe the user interfaces used in a text editor.	3

PART B

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

Module -1

11	a)	Explain the addressing modes supported by SIC/ XE machine with suitable illustrations.	8
	b)	List and explain any three syatem softwares.	6
12	a)	Explain the SIC/XE architecture in detail.	8
	b)	Illustrate the working of a relocating loader.	6

Module -2

13	a)	Write and explain the pass one of a two pass assembler algorithm and different data structures used in it.	8
	b)	Write a SIC program for doing the following arithmetic operations: BETA = ALPHA + INCR – 1 DELTA = GAMMA + INCR – 1	6

14	a)	Write and explain the pass two of a two pass assembler algorithm and different data structures used in it.	8
	b)	Write SIC program to swap the values of two variables ALPHA and BETA.	6

Module -3

15	a)	Explain control sections and its implementation with example.	8
	b)	Explain program relocation and its uses.	6
16	a)	Explain program blocks and its implementation with example.	8
	b)	Illustrate the working of a multipass assembler with an example.	6

Module -4

17	a)	Write and explain the algorithm and the data structures used for the pass 1 of a two-pass linking loader.	8
	b)	Explain the need and working of a bootstrap loader.	6
18	a)	Write and explain the algorithm and the data structures used for the pass 2 of a two-pass linking loader.	8
	b)	With the help of a diagram, compare linking loader and linkage editor.	6

Module -5

19	a)	Explain one pass macroprocessor algorithm. Illustrate it with an example.	8
	b)	Distinguish between character and block device drivers.	6
20	a)	With a neat diagram outline the structure of debugger.	8
	b)	Explain any two machine independent feature of a macroprocessor.	6

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