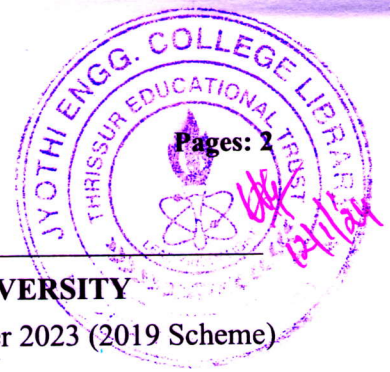


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1100CST305122203



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 system 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:<br>BETA = ALPHA + INCR - 1<br>DELTA = GAMMA + INCR - 1 | 6 |

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- 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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