Reg No.:_____ Name:_____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

**Course Code: CS303**

**Course Name: SYSTEM SOFTWARE (CS)**

Max. Marks: 100 Duration: 3 Hours

**PART A**

***Answer all questions, each carries 3 marks*** Marks

| | | | |
|---|---|---|---|
| 1 | | Write notes on SIC machine architecture. | (3) |
| 2 | | Explain the syntax of the records in the Object Program File. | (3) |
| 3 | | What are assembler directives? List out any five assembler directives in SIC. | (3) |
| 4 | | Explain the different data structures used in the implementation of Assemblers. | (3) |

**PART B**

***Answer any two full questions, each carries 9 marks***

| | | | |
|---|---|---|---|
| 5 | a) | Briefly discuss the architecture of SIC/XE machine. | (5) |
| | b) | Write a subroutine for SIC/XE that will read a record into a buffer. The record may be any length from 1 to 100 bytes. The end of record is marked with a "null" character (ASCII code 00). The subroutine should place the length of the record read into a variable named LENGTH. Use immediate addressing and register-to-register instructions to make the process as efficient as possible. | (4) |
| 6 | | Explain the two passes of the assembler algorithm with proper example. | (9) |
| 7 | a) | With suitable example, explain the concept of Program Relocation. | (5) |
| | b) | List out the basic functions of Assemblers with proper examples. | (4) |

**PART C**

***Answer all questions, each carries 3 marks***

| | | | |
|---|---|---|---|
| 8 | | What is a Literal? How is a literal handled by an assembler? | (3) |
| 9 | | Explain the algorithm for an absolute loader. | (3) |
| 10 | | Write notes on Multi pass assemblers. | (3) |
| 11 | | What is Automatic Library Search. | (3) |

**PART D**

***Answer any two full questions, each carries 9 marks***

| | | | |
|---|---|---|---|
| 12 | a) | With example, write notes on Program Blocks. | (5) |
| | b) | What is a forward reference? How are forward references handled by a single pass assembler? | (4) |
| 13 | | With the data structures used, state and explain two pass algorithm for a linking loader. | (9) |
| 14 | a) | Explain how external references are handled by an assembler. | (5) |
| | b) | What is Dynamic Linking? Explain with example. | (4) |

## PART E

***Answer any four full questions, each carries 10 marks***

| | | | |
|---|---|---|---|
| 15 | | Explain the Macroprocessor algorithm. | (10) |
| 16 | a) | What are the different data structures used in the implementation of the Macroprocessor algorithm? Give examples. | (5) |
| | b) | Write notes on Recursive Macro Expansion. | (5) |
| 17 | a) | How are unique labels generated in a Macro Expansion? | (5) |
| | b) | Explain Conditional Macro Expansion with an example. | (5) |
| 18 | a) | Explain the general design of device driver. | (5) |
| | b) | Differentiate between Character and Block Devices. | (5) |
| 19 | a) | Explain the different types of Text Editors and User Interface. | (5) |
| | b) | Explain Editor structure in detail with neat figures. | (5) |
| 20 | a) | What is a Debugger? | (4) |
| | b) | Explain the different debugging methods in detail. | (6) |

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