**B**  **B7033**

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## APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
### FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017
**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.   Explain the instruction format and addressing modes of SIC.          (3)
2.   Explain program relocation with an example.                          (3)
3.   Write a sequence of instructions for SIC/XE to divide BETA by GAMMA and   (3)
     to store the integer quotient in ALPHA and remainder in DELTA.
4.   Describe the data structures used in the two pass SIC assembler algorithm.  (3)

### PART B
*Answer any two full questions, each carries 9 marks.*

5.  a) What are assembler directives? List any three assembler directives in SIC   (4)
       machine.
    b) Give the algorithm for pass 1 of a two pass SIC assembler.                  (5)

6.  a) Describe the format of object program generated by the two-pass SIC         (4)
       assembler algorithm.
    b) Let NUMBERS be an array of 100 words. Write a sequence of instructions for  (5)
       SIC to set all 100 elements of the array to 1.
7.  a) Write notes on the architecture of SIC/XE                                   (4)
    b) Explain with suitable examples, how the different instruction formats and   (5)
       addressing modes of SIC/XE are handled during assembling.

### PART C
*Answer all questions, each carries 3 marks.*

8.   Give the algorithm for an absolute loader.                            (3)
9.   Explain the format and purpose of Define and Refer records in the object  (3)
     program.
10.  Differentiate between linking loaders and linkage editors.            (3)
11.  Write short notes on MASM assembler.                                  (3)

### PART D
*Answer any two full questions, each carries 9 marks.*

12. a) Explain the concept of single pass assembler with a suitable example.        (5)
    b) Write notes on machine independent loader features.                          (4)
13. a) How are control sections different from program blocks? Explain, with proper  (4)
       examples, the purpose of EXTREF and EXTDEF assembler directives.
    b) Describe the data structures used for the linking loader algorithm. Give the  (5)
       algorithm for pass 1 of the linking loader.

14. a) Explain, with examples, the working of a multi pass assembler. (5)

    b) Write notes on the different loader design options. (4)

### PART E
### *Answer any four full questions, each carries 10 marks.*

15. a) Explain the concept of macro definition and expansion with the help of examples. (5)

    b) Write notes on the user interface of a text editor. (5)

16. a) Describe the data structures used in a one pass macro processor algorithm. (3)

    b) Give the algorithm for a one pass macro processor. (7)

17. a) Explain conditional macro expansion with an example. (5)

    b) Explain the structure of a text editor with the help of a diagram. (5)

18. a) Write notes on the debugging functions and capabilities of an interactive debugging system. (5)

    b) Differentiate between character and block device drivers. (5)

19. a) Give the general design of a device driver. (5)

    b) Explain recursive macro expansion with example. (5)

20. a) Describe any two commonly used debugging methods. (5)

    b) Write notes on keyword macro parameters, giving suitable examples. (5)

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