B E1130 Pages. 2

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Course Code: CS303

Course Name: SYSTEM SOFTWARE

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries3 marks. Marks

1 Explain three functions of Operating System (3)

2 Write a sequence of instructions for SIC/ XE to find the average of three numbers, BETA, GAMMA and DELTA. (3)

3 Explain the format of the object program generated by a two-pass SIC Assembler, highlighting the contents of each record type. (3)

4 Explain the data structures used and their purposes in a two-pass assembler. (3)

PART B

Answer any two full questions, each carries9 marks.

5 Compare the features of Standard SIC and SIC/XE architecture. (9)

6 a) Explain assembler directives. List any four assembler directives in SIC machine. (5)

b) Explain the concept of program relocation with an example. (4)

7 Write the algorithms for Pass 1 and Pass 2 of a two-pass assembler (9)

PART C

Answer all questions, each carries3 marks.

8 Differentiate Define record and Refer record. (3)

9 Explain how forward references are resolved during program assembling in a single pass assembler. (3)

10 Give the absolute loader algorithm. (3)

11 Explain the concept of Automatic Library Search. (3)

PART D

Answer any two full questions, each carries9 marks.

12 Differentiate Program Blocks and Control Sections. Explain how address calculation is performed in the case of Program Blocks. (9)

13 a) Explain the working of Multipass Assemblers with an example. (5)

b) Explain Dynamic Linking with an example (4)

14 Which are the data structures used during the operation of a linking loader? Write the algorithm for Pass 2 of a Linking Loader (9)

PART E

Answer any four full questions, each carries10 marks.

15 a) A code segment need to be repeatedly used in various parts of assembly language program and fast execution is also needed. Would you use a macro or a subroutine? Justify your answer with help of examples. (5)

b) List and explain the different design options available for macroprocessors. (5)

16 Certain macro processor features are independent of the machine architecture. Give the details of such machine independent macro-processor features. (10)

17 Write the algorithm for one pass macro processor and explain the process, showing when and how the different data structures are used. (10)

18 Using a neat diagram, explain the structure of a text editor. (10)

19 A new hardware device is plugged into a system. Which is the appropriate system software needed for the proper working of the new hardware? Give its functionalities and general architecture. (10)

20 Write down the situations where debugging by induction, deduction and backtracking are used, explaining each process. (10)

****