Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – April/May – 2017**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14CS2045** | **Duration :** | **3hrs** |
| **Sub. Name :** | **System Software** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Compare and contrast SIC architecture with SIC/XE architecture. | CO2 | 14 |
| b. | Write a program in SIC for the following operation X+Y=Z. | CO1 | 6 |
| (OR) | | | | |
| 2. | a. | Describe the following in VAX architecture  (i) Registers  (ii) Data formats  (iii) Instruction formats  (iv) Addressing modes  (v) Instruction set and | CO2 | 10 |
| b. | Write a program for SIC machine to copy 11 byte string from one location to another | CO1 | 10 |
| 3. | a. | Analyze one pass, two pass and multi-pass assemblers and justify which one is suitable for solving forward reference problem. | CO3 | 10 |
|  | b. | Write the pseudo code for two pass assembler highlighting the data structures used. | CO3 | 10 |
| (OR) | | | | |
| 4. |  | **What is the output of the following program and obtain the corresponding object program using SIC.**   |  |  |  | | --- | --- | --- | | **LABEL** | **Instruction** | **Operand** | | TEST | START | 2000 | | FIRST | LDA | C | |  | MUL | NINE | |  | DIV | FIVE | |  | ADD | THIRTYTWO | |  | STA | F | | C | RESW | 1 | | F | RESW | 1 | | NINE | WORD | 9 | | FIVE | WORD | 5 | | THIRYTWO | WORD | 32 | |  | END | FIRST |   OPCODE TABLE  LDA 00  MUL 20  DIV 24  ADD 18  STA 0C | CO3 | 20 |
| 5. | a. | Write an algorithm for bootsrap loader and explain how the algorithm works for a given input 14? What are the advantage and disadvantage of absolute loader? | CO3 | 10 |
|  | b. | If absolute loader is used to load the following object program. How this program would be loaded in memory?  H^ COPY^ 001000^ 000012  T^ 001000^ 12^141033^ 482039^ 001036^ 281030^ 301015^ 482061  E^ 001000 | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | Assume a scenario where you want to execute a program for ‘n’ number of times in your system. Which type of loader will you select? Justify the answer. | CO2 | 5 |
|  | b. | How could you postpone the subroutine using dynamic linking? Explain with a neat sketch. | CO2 | 15 |
| 7. | a. | Translate the following macro invocation statements, using the macro definition given below  RDBUFF F1, BUFFER, LENGTH  RDBUFF F2, INPUT, BUF, LEN  RDBUFF MACRO &INDEV, &BUFADR, &RECLTH  CLEAR X  CLEAR A  CLEAR S  +LDT #4096  $LOOP TD =X’&INDEV’  JEQ $LOOP  RD =X’&INDEV’  COMPR A,S  JEQ $EXIT  STCH &BUFADR, X  TIXR T  JLT $LOOP  $EXIT STX &RECLTH  MEND | CO3 | 14 |
|  | b. | Justfy the significance of keyword macro parameter in macro processor | CO3 | 6 |
| (OR) | | | | |
| 8. | a. | Recall how conditional macro differs from ordinary macros. Give an example. | CO3 | 6 |
|  | b. | List and discuss the various tables used in macro processor. | CO3 | 7 |
|  | c. | Summarize the steps in generation of unique labels in macro processor. | CO3 | 7 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Compare DBMS with file processing systems and explain three levels of abstraction | CO3 | 10 |
|  | b. | Describe editor structure with neat diagram and draw the relationship between the viewing and editing buffer. | CO3 | 10 |

ALL THE BEST