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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**Supplementary Examination – June – 2017**

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| **Code :** | **14CS2045** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SYSTEM SOFTWARE** | **Max. marks :** | **100** |

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

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Write the sequence of instructions in SIC/XE to perform A+ONE−1 in ALPHA and B+ONE−1 in DELTA. | CO1 | 6 |
| b. | Describe the architecture of SIC/XE Machine in detail. | CO2 | 14 |
| (OR) | | | | |
| 2. | a. | Describe the following for Cray T3 machine architecture.   1. Memory 2. Registers 3. Data formats 4. Instruction formats 5. Addressing modes 6. Instruction set and Input/output. | CO2 | 10 |
| b. | Outline about the memory,registers,data formats,instruction formats addressing modes of Pentium Pro architecture. | CO2 | 10 |
| 3. | a. | Differentiate control section from program blocks while assembling and loading the code. | CO3 | 10 |
|  | b. | How does an assembler handle the following features? Explain with an example.  i. Literals  ii. Symbol defining statements  iii. Expressions | CO3 | 10 |
| (OR) | | | | |
| 4. |  | Translate the following assembly program to SIC object program with H record, T record, and E record.  SAMPLE START 1000  LDA ALPHA  ADD INCR  SUB ONE  STA BETA  LDA GAMMA  ADD INCR  SUB ONE  STA DELTA  ONE WORD 1  ALPHA RESW 1  BETA RESW 1  GAMMA RESW 1  DELTA RESW 1  INCR RESW 1  END 1  OPCODE TABLE  LDA 00  ADD 18  SUB 1C  STA 0C | CO1 | 20 |
| 5. | a. | Justfy Why 2 pass loader is required for solving external symbols and external references in control section. | CO3 | 10 |
|  | b. | Compare and contrast linking loader with linkage editor with a neat sketch. | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | Explain how loading and calling of subroutine is done using dynamic linking with appropriate diagram. | CO3 | 7 |
|  | b. | Describe Automatic Library Search. | CO3 | 6 |
|  | c. | Illustrate any four loader options that modify the standard processing. | CO3 | 7 |
| 7. | a. | Explain in detail the data structure and algorithm of an one pass macro processor that can switch between definition and expansion. | CO3 | 14 |
|  | b. | Justify the significance of keyword macro parameter in macro processor. | CO3 | 6 |
| (OR) | | | | |
| 8. | a. | How forward references are handled by multi pass assembler? Illustrate with an example. | CO3 | 12 |
|  | b. | Express the features of ELENA macro processor. | CO3 | 8 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain about the Interactive debugging system functions with its capabilities. | CO3 | 10 |
|  | b. | Show the working principle of an Editor structure with neat diagram. | CO3 | 10 |

ALL THE BEST