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



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14EC2026** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCED MICROPROCESSOR ARCHITECTURE** | **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. | What are the functional requirements that a computer designer must bear in mind to design a new system? | CO1 | 10 |
| b. | Compare the features of RISC and CISC Machine. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | List out the various operations in the instruction set used in computer architecture. | CO3 | 10 |
| b. | Brief about the performance metrics used to evaluate the system of computer. | CO2 | 10 |
|  |  |  |  |  |
| 3. |  | Discuss about the various types of address machine in the microprocessor system. | CO1 | 20 |
| (OR) | | | | |
| 4. | a. | Describe the usage of register and memory in the system. | CO1 | 10 |
|  | b. | List out the problems in designing the instruction set for the microprocessor system. | CO3 | 10 |
|  |  |  |  |  |
| 5. | a. | What is the value of variables x and y after the following operations are performed:  x = 3 - 2 - 1;  y = 12/6/3;  If you are unsure about the result, then write a small program in the  language you like, and see which are the rules for the associativity. | CO3 | 10 |
|  | b. | Show how to implement the high level statement  a = a + b + a \* c  on a 3-address machine and then on a 2-address machine. Both machines are 8 bit register-register machines with 32 general purpose registers and a 16 bit addresses. The values of variables a, b, and c are stored in r1, r2 and r3 respectively. In any case calculate the number of clock cycles necessary if every memory access takes two clock cycles and the execution phase of an instruction takes one clock cycle. | CO3 | 5 |
|  | c. | Suppose you have a machine used in an I/O intensive environment; theCPU is working 75% of the time and the rest is waiting for I/O operations to complete. You may consider an improvement of the CPU by a factor of 2 (it will run twice as fast as it runs now) for a fivefold increase in cost. The present cost of the CPU is 20% of the machine's cost. Is the suggested improvement cost effective? | CO1 | 5 |
| (OR) | | | | |
| 6. | a. | Explain the concept about pipelined feature in microprocessor architecture. | CO2 | 10 |
|  | b. | Identify the hazards present in pipelining architecture. | CO2 | 10 |
|  |  |  |  |  |
| 7. | a. | Show that parallelism improves the performance of the system. | CO2 | 10 |
|  | b. | Classify the types of dependency in the system. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Describe the hardware and compiler support for ILP. | CO2 | 10 |
|  | b. | Enumerate the importance of superscalar processor. | CO3 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Compare the features of VLIW processor, vector and symbolic processors in microprocessor system. | CO3 | 20 |

ALL THE BEST