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



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

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| **Code :** | **14EC2015** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MICROCONTROLLER AND ITS APPLICATIONS** | **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. | Draw the block diagram of 8051 and explain the important features of 8051. | CO1 | 15 |
| b. | Find the contents of the accumulator and flag registers of 8051 after the execution of each instruction.  MOV 0D0h,#00h  MOV A,#3Ah  MOV 45h,#13h  SUBB A,45h  SUBB A,45h  SUBB A, #80h | CO3 | 5 |
| (OR) | | | | |
| 2. | a. | Explain any 6 byte level and bit level logical instructions of 8051 microcontroller. | CO1 | 12 |
| b. | Write a program that finds the number of 1s in a given byte. Given number- 97 h. | CO3 | 8 |
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| 3. | a. | Discuss the addressing modes of 8051 with examples. | CO1 | 12 |
| b. | What will be the content of accumulator after executing the following instructions?  MOV A,#58H  MOV R2,#03H  LOOP: RLA  DJNZ R2, LOOP | CO3 | 8 |
| (OR) | | | | |
| 4. | a. | Describe Jump and call instructions of 8051. | CO1 | 10 |
|  | b. | Write the programming steps to transfer the data serially using 8051. | CO2 | 10 |
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| 5. | a. | Illustrate the interrupts of 8051 with their special function registers. | CO2 | 8 |
| b. | Demonstrate the Mode 0 and Mode 1 operations of 8051 Timer. | CO2 | 12 |
| (OR) | | | | |
| 6. | a. | Sketch the port 1 structure of 8051 and show its working in input and output mode. | CO2 | 12 |
|  | b. | Calculate the time delay generated by the timer if count FFF2 is loaded. Crystal freq. is 12 MHz. | CO3 | 8 |
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| 7. |  | Draw the architecture of PIC16C74A microcontroller and explain its features in detail. | CO1 | 20 |
| (OR) | | | | |
| 8. | a. | Explain the operations of timer 0 and timer 1 modes of PIC with necessary diagrams. Discuss the control registers associated with them. | CO1 | 12 |
|  | b. | Illustrate the data transfer in I2C bus. | CO2 | 8 |
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|  | | **Compulsory:** |  |  |
| 9. |  | With necessary diagrams describe the hardware and software of keyboard interfacing with the microcontroller. | CO2 | 20 |

ALL THE BEST