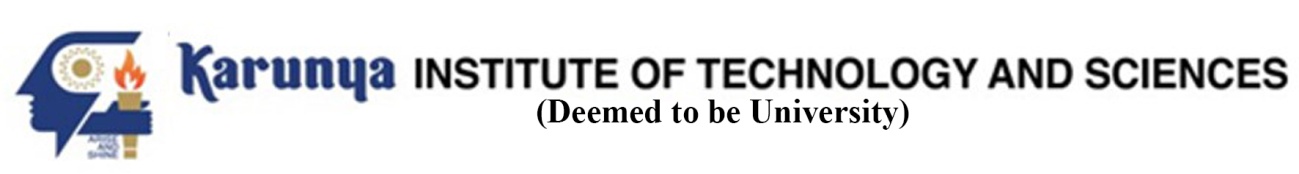
Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **12EC218** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MICROCONTROLLER AND ITS APPLICATIONS** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | Mention the widely used clock frequency of 8051 microcontroller? | 1 |
| 2. | The flag register in 8051 contains 8 bits. (T/F) | 1 |
| 3. | How many interrupts are available in 8051? | 1 |
| 4. | Find the value for TMOD to program timer 0 in mode 2. | 1 |
| 5. | Write the alternate functions of port 3 in 8051 microcontroller. | 1 |
| 6. | Write the bit values in DDRC, when all the port pins are used as output in 68HC11 Microcontroller. | 1 |
| 7. | Which port performs the alternate function of timer in Motorola 68HC11? | 1 |
| 8. | \_\_\_\_\_\_\_\_\_\_\_\_ flag indicates the completion of conversion process in ADC of 68HC11. | 1 |
| 9. | The instruction : **movlw 02** means \_\_\_\_\_\_\_\_\_. | 1 |
| 10. | Give the status register format in PIC microcontroller. | 1 |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11. | What will be the content of the accumulator, after executing the following instruction?  MOV A,# 67  MOV R2, # 02  GO RLA  DJNZ R2, GO | 3 |
| 12. | Show the status of TCON register, after executing the instruction MOV TCON, # 48. | 3 |
| 13. | Name the signals used in serial peripheral interface of 68HC11. | 3 |
| 14. | Discuss the features of Bootstrap mode in Motorola 68HC11. | 3 |
| 15. | Mention briefly about the timers in PIC. | 3 |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. | a. | Draw the internal RAM organization of Intel 8051 and explain the special function registers and PSW. | 10 |
| b. | Explain the following instructions. i. SWAP A  ii. MUL AB  iii. CPL C  iv. MOV B, 32  v. MOV B,#32 | 5 |
| (OR) | | | |
| 17. | a. | Explain the various addressing modes in 8051. | 8 |
| b. | Write an assembly language program to count the first n natural numbers. | 7 |
|  |  |  |  |
| 18. | a. | Explain the various modes of timer in 8051. | 10 |
| b. | Give the format for SMOD and specify the importance of each bit. | 5 |
| (OR) | | | |
| 19. |  | Explain all the I/O ports in 8051 micro controller with necessary diagrams. | 15 |
|  |  |  |  |
| 20. | a. | Give a short note on ports and its alternate functions in 68HC11. | 5 |
| b. | With a neat diagram explain the concept of input capture technique in Motorola 68HC11. | 10 |
| (OR) | | | |
| 21. | a. | Explain the various operating modes in Motorola 68HC11. | 10 |
| b. | Explain the features of Motorolla 68HC11. | 5 |
|  |  |  |  |
| 22. | a. | Explain how data transfer takes place between master and slave in Serial peripheral interface. | 8 |
| b. | Discuss the features of ADC in 68HC11. | 7 |
| (OR) | | | |
| 23. |  | Explain in detail about the Transmitter and receiver sections in SCI of 68HC11. | 15 |
|  |  |  |  |
| 24. | a. | Draw the architecture of PIC microcontroller and Explain about its CPU registers. | 8 |
| b. | Explain in detail about the timer 0 in PIC and its interrupt. | 7 |
| (OR) | | | |
| 25. | a. | Illustrate the data transfer in I2C bus. | 5 |
| b. | With a block diagram and flowchart/algorithm, explain how microcontrollers are used to control the speed of a DC motor. | 10 |