| Reg. No. | | | | | | | | | | | | |
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| Question Paper Code | 12476 |
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**B.E. / B.Tech - DEGREE EXAMINATIONS, NOV / DEC 2023**

Fifth Semester

**Computer Science and Engineering**

(Common to Information Technology)

**20ESEC502 - MICROPROCESSORS AND MICROCONTROLLERS**

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

| | | *Marks, K-Level ,CO* |
|---|---|---|
| 1. | Write the flags of 8086. | *2,K1,CO1* |
| 2. | Estimate the physical address, when segment address is 1085H and effective address is 4537H. | *2,K2,CO1* |
| 3. | What is the function of MN/MX pin? | *2,K2,CO2* |
| 4. | List the types of interrupts in 8086. | *2,K1,CO2* |
| 5. | Define Modular Programming. | *2,K1,CO3* |
| 6. | Write an assembly code to convert to Upper case letter. | *2,K1,CO3* |
| 7. | What is the function of DMA controller? | *2,K1,CO4* |
| 8. | State the important functions of I/O interface. | *2,K2,CO4* |
| 9. | List the features of 8051 microcontroller. | *2,K2,CO5* |
| 10. | Write a program to find 2's complement using 8051. | *2,K2,CO5* |

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

| | | | |
|---|---|---|---|
| 11. | a) | Explain the internal hardware architecture of 8086 microprocessor with neat diagram. | *13,K2,CO1* |
| | | **OR** | |
| | b) | Explain the various addressing modes of 8086 microprocessor with examples. | *13,K2,CO1* |
| 12. | a) | Draw the pin diagram of 8086 processor and explain all the signals. | *13,K3,CO2* |
| | | **OR** | |
| | b) | (i) Explain the read bus cycle in 8086 with a neat sketch. | *7,K2,CO2* |
| | | (ii) Explain the write bus cycle in 8086 with a neat sketch. | *6,K2,CO2* |

13. a) (i) Write assembly code to verify the password and to validate the user. *6,K3,CO3*

(ii) Write Assembly code to perform Reverse string operations. *7,K3,CO3*

**OR**

b) Write assembly program to convert Binary to ASCII and vice versa. *13,K3,CO3*

14. a) Explain the operation of DMA controller 8237 with neat diagram. *13,K3,CO4*

**OR**

b) Draw the block diagram of 8279 and explain the function of each. *13,K3,CO4*

15. a) With a functional block diagram, briefly discuss the architecture of 8051 microcontroller. *13,K2,CO5*

**OR**

b) Explain the arithmetic and logical instructions of 8051 with example. *13,K2,CO5*

**PART - C (1 × 15 = 15 Marks)**

16. a) Draw and explain the interfacing connections between 8051 and stepper motor by using driver IC as an interface. Write the steps and assembly program to rotate the stepper motor in the clockwise direction. *15,K3,CO6*

**OR**

b) Write the steps and assembly program to perform Traffic Light control system using 8086 processor. *15,K3,CO6*