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| **20EC405**  **Hall Ticket Number:**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |      |  |  |  | | --- | --- | --- | | **II/IV B.Tech (Regular) DEGREE EXAMINATION** | | | | **August,2022** | **Electronics and Communication Engineering** | | | **Fourth Semester** | **Microprocessor and Microcontroller** | | | **Time: Three Hours** | | **Maximum:70 Marks** | | | | | | | |  |
| |  |  | | --- | --- | | ***Answer question 1 compulsory.*** | **(14X1 = 14 Marks)** | | ***Answer one question from each unit.*** | **(4X14=56 Marks)** | | | | | | | |  |
| 1. | a) | |  | | --- | | Define microprocessors? | | CO1 |  |
|  | b) | Explain Physical address Formation. | CO1 |  |
|  | c) | Define OFFSET address. | CO1 |  |
|  | d) | List the features of 8086. | CO1 |  |
|  | e) | List the 8086 Program development steps. | CO2 |  |
|  | f) | Write an ALP to multiply two 8- bit numbers using 8086. | CO2 |  |
|  | g) | Define procedure in 8086. | CO2 |  |
|  | h) | Classify 8086 Interrupts. | CO2 |  |
|  | i) | Define interfacing. | CO3 |  |
|  | j) | List the modes of operation of 8254. | CO3 |  |
|  | k) | How many pins are there in RS232C? | CO3 |  |
|  | l) | Explain AJMP instruction | CO4 |  |
|  | m) | Provide any two differences between timer and a counter. | CO4 |  |
|  | n) | What is the purpose of 8051 serial data input? | CO4 |  |
| **Unit –I** | | | | |
| 2. | a) | Explain the 8086 Architecture with neat block diagram. | CO1 | 10M |
|  | b) | Explain about the following 8086 microprocessor instructions, indicate the flag bits that will be affected i)REP ii)AAS iii)LOOPZ | CO1 | 4M |
| **(OR)** | | | | |
| 3. | a) | Explain any 4 assembler directives in 8086. | CO1 | 4M |
|  | b) | Explain 8086 addressing modes. | CO1 | 10M |
| **Unit –II** | | | | |
| 4. | a) | Write an assembly language program to convert packed BCD number to unpacked BCD number. | CO2 | 7M |
|  | b) | Write an assembly language program to find sum of squares using procedure to pass parameter through registers. | CO2 | 7M |
| **(OR)** | | | | |
| 5. | a) | Differentiate procedures and macros in 8086 | CO2 | 4M |
|  | b) | Explain 8086 Interrupts and Interrupt responses. | CO2 | 10M |
| **Unit –III** | | | | |
| 6. | a) | With a neat block diagram explain the working of 8251. | CO3 | 7M |
|  | b) | With a neat block diagram explain the working of 8237 DMA controller. | CO3 | 7M |
| **(OR)** | | | | |
| 7. | a) | With a neat block diagram explain the working of 8255 PPI. | CO3 | 7M |
|  | b) | With a neat block diagram explain the working of 8259. | CO3 | 7M |
| **Unit –IV** | | | | |
| 8. | a) | Draw and explain the format of TMOD register of 8051. | CO4 | 4M |
|  | b) | Write a program in 8051 to generate a square wave of 5 ms using mode1 and timer 0.Assume XTAL=22MHz | CO4 | 10M |
| **(OR)** | | | | |
| 9. | a) | Explain why SJMP instruction is used in the place of HLT in 8051? | CO4 | 7M |
|  | b) | Write a program in 8051 to transfer letter ‘A’ serially at 4800 Band rate  continuously | CO4 | 7M |

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**Scheme**

1. All bits carry one mark.

2. a) Architecture-4M, Explanation- 3M

b) Explanation of instructions REP-2M, AAS-3m, LOOPZ-2m

3. a) Any 7 assembler directives- 7 M

b) Any 7 addressing modes - 7 M

4. a) Program with Explanation- 7 M

b) Program with Explanation- 7 M

5. a) Any 4 points of difference between procedures and macros-7M

b) Diagram-2 M, Explanation-5 M

6. a) Architecture-4M, Explanation- 3M

b) Architecture-4M, Explanation- 3M

7. a) Architecture-4M, Explanation- 3M

b) Architecture-4M, Explanation- 3M

8. a) Diagram-2 M , Explanation-5 M

b) Function Explanation-2 M, Modes Explanation-5 M

9. a) Explanation -7 M

b) Program with Explanation- 7 M