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QUESTION BANK

Subject Code : Microprocessors and Microcontrollers(19EC0421) **Course & Branch:** B.Tech – CSE

Year & Sem: II-B.Tech & I-Sem

Regulation: R19

UNIT-1

- 1) a) Define microprocessor. Explain the brief history of evolution of μ P. [L1][CO1][6M]
b) Explain the block diagram of microcomputer with neat sketch. [L2][CO1][6M]
- 2) Define instruction and explain different type's instructions supported by μ P. [L1][CO1][12M]
- 3) a) What is the need of memory? And classify different types of memory. [L1][CO1][6M]
b) Compare RAM and ROM memories. [L4][CO1][6M]
- 4) With a neat sketch explain the operation of Microprocessor Controlled Temperature System (MCTS). [L3][CO1][12M]
- 5) a) Write short notes on input devices. [L3][CO1][4M]
b) Briefly explain different computer languages. [L2][CO1][8M]
- 6) a) Write short notes on output devices. [L3][CO1][6M]
b) Compare static RAM and Dynamic RAM [L1][CO1][6M]
- 7) With a neat sketch explain any example of a microcomputer system. [L3][CO1][12M]
- 8) Describe how computers are classified from large computers to single chip microcontrollers. [L2][CO1][12M]
- 9) a) Differentiate between μ P & μ C. [L4][CO1][7M]
b) Explain the terms i) SSI ii) MSI iii) LSI iv) VLSI v) ULSI [L2][CO1][5M]
- 10) a) Draw and explain the basic architecture of a microprocessor. [L2][CO1][8M]
b) Define the terms: i) BIT, ii) NIBBLE, iii) BYTE & iv) WORD [L1][CO1][4M]

UNIT-II

- 1) **a)** List out the important features (any 12) of 8085 microprocessor. [L1][CO2][6M]
b) Sketch neat block diagram of 8085 microprocessor. [L3][CO1][6M]
- 2) **a)** Explain the requirement of a program counter, stack pointer & ALU in 8085 μ P. [L1][CO1][6M]
b) Draw and define the flags in 8085 μ P. [L1][CO2][6M]
- 3) **a)** Draw the pin diagram of 8085 μ P. [L3][CO2][7M]
b) Define the following pins: [L1][CO1][5M]
i) READY **ii)** ALE **iii)** RESET OUT **iv)** HOLD & HLDA.
- 4) **a)** Explain briefly the control & status signals in 8085 μ P. [L2][CO2][6M]
b) Define and explain the different types of interrupts available in 8085 μ P. [L1][CO2][6M]
- 5) Explain in detail how a data flow from memory to Microprocessor Unit. [L2][CO2][12M]
- 6) **a)** Explain the concept of De-multiplexing the Bus AD7-AD0. [L2][CO2][8M]
b) Classify the register set in 8085 μ P. [L2][CO2][4M]
- 7) Explain the following instructions of 8085 microprocessor with an example.
a) Data transfer instructions **b)** Logical instructions. [L2][CO2]
[6M + 6M]
- 8) Explain the following instructions of 8085 microprocessor with an example.
a) Arithmetic instructions **b)** Stack control instructions. [L2][CO2]
[6M + 6M]
- 9) **a)** Define instruction. [L1][CO2][2M]
b) Explain the instruction, data formats & data storage in 8085 μ P. [L2][CO2][10M]
- 10) **a)** Describe how timing and control signals are generated in 8085 μ P. [L1][CO2][6M]
b) Explain what operation will take place when the following instructions are executed:
i) RAL **ii)** RLC **iii)** DAD [L2][CO2][6M]

UNIT – III

- 1) With the help of neat diagrams, Describe the differences between microprocessors and microcontrollers. [L4][CO3][12M]
- 2) a) List the features of 8051 microcontroller. [L1][CO3][8M]
b) Dissect the applications of microcontrollers in everyday life. [L4][CO3][4M]
- 3) With the help of a neat block diagram, Explain the internal architecture of 8051 microcontroller in detail. [L4][CO3][12M]
- 4) a) Define register. Mention the need of registers in μP or μC . [L1][CO3][5M]
b) Draw the flag register of 8051 μC and describe the functionality of each flag in detail [L2][CO3][7M]
- 5) Classify the various registers present in 8051 μC and explain their functionality in detail [L2][CO3][12M]
- 6) Sketch the pin diagram of 8051 μC and describe the functionality of each pin in detail. [L3][CO3][12M]
- 7) a) Mention the importance of I/O port in a μP or μC . [L4][CO3][2M]
b) Describe the functionality of I/O ports present in 8051 μC . [L1][CO3][10M]
- 8) a) Explain the importance of memory in a μP or μC . [L2][CO3][2M]
b) Describe how the memory is organised in 8051 μC in detail. [L1][CO3][10M]
- 9) a) Define counter. Mention the applications of counter [L2][CO3][3M]
b) Describe the operation of timers present in 8051 μC . [L2][CO3][9M]
- 10) a) Compare serial communication and parallel communication. [L5][CO3][3M]
b) Explain how the 8051 μC transfers the data using serial port. [L2][CO3][9M]

UNIT – IV

- 1) a) Write a short note on assembly language programming. [L1][CO4][3M]
b) Explain the moving data instructions of 8051 μ C with an example. [L2][CO4][9M]
- 2) a) Define addressing mode. [L1][CO4][2M]
b) List various addressing modes of 8051 microcontroller and explain them with an example each. [L4][CO4][10M]
- 3) a) Mention various logical operations performed in assembly language. [L2][CO4][2M]
b) Explain the logical Instructions of 8051 μ C with an example. [L2][CO4][10M]
4. Explain the following operators of 8051 μ C with an example. [L2][CO4][12M]
a. Bit level (ii) Byte level
- 5) a) Mention the difference between Jump and Call operations. [L1][CO4][2M]
b) Explain Jump and Call instructions of 8051 μ C with an example. [L2][CO4][10M]
6. Write an assembly program of 8051 μ C to multiply two 8-bit numbers and store the result in a memory location. [L4][CO4][12M]
- 7) a) Mention various arithmetic operations performed in assembly language. [L2][CO4][2M]
b) Explain the arithmetic Instructions of 8051 μ C with an example. [L2][CO4][10M]
- 8) a) Describe the operation of return instruction in 8051 μ C with suitable example. [L2][CO4][3M]
b) Explain how the 8051 μ C performs rotate and swap operations with an example.
- 9) a) Write an assembly program of 8051 μ C to divide two 8-bit numbers and store the result in a memory location. [L2][CO4][5M]
b) Write an assembly program of 8051 μ C to subtract two 8-bit numbers and store the result in a memory location. [L2][CO4][5M]
- 10) a) Write an assembly program of 8051 μ C to logically AND two 8-bit numbers and store the result in a memory location. [L2][CO4][5M]
b) Write an assembly program of 8051 μ C to logically OR two 8-bit numbers and store the result in a memory location. [L2][CO4][5M]

UNIT – V

- 1) a) With a neat diagram, show the interfacing of a 4x4 matrix keypad with 8051 μ C. [L4][CO5][7M]
b) Describe key bouncing problem and de-bouncing solutions. [L6][CO5][5M]
- 2) Describe with a schematic, the scanning of the 4x4 matrix keyboard in an 8051 based system and identifying the key pressed. [L4][CO5][12M]
- 3) a) Write a short note on LCD Display. [L1][CO5][3M]
b) With the help of a neat diagram show the interfacing of LCD Display with 8051 μ C and explain its operation. [L4][CO5][9M]
- 4) a) List instruction command codes for programming an LCD. [L1][CO5][8M]
b) List the merits, demerits and applications of an LED display over an LCD. [L4] [CO5] [4M]
- 5) a) List the features of 16X2 LCD display. [L4][CO5][3M]
b) Draw and explain the pin Diagram of 16x2 LCD display. [L2][CO5][9M]
- 6) a) Write a short note on 7-Segment display. [L3][CO5][3M]
b) With the help of a neat diagram, show the interfacing of 7- segment display with 8051 μ C and explain its operation. [L2][CO5][9M]
- 7) a) Write a short note on Analog to Digital Converter. [L1][CO5][3M]
b) With the help of a neat diagram, show the interfacing of ADC 0808 with 8051 μ C and explain its operation. [L2][CO5][9M]
- 8) a) Define Interrupt and classify the interrupts. [L1][CO5][4M]
b) Explain multiple interrupts present in 8051 μ C. [L2][CO5][8M]
- 9) Design and explain the implementation of 4-way traffic control system using 8051 microcontroller. [L4][CO5][12M]