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ECE 181501

BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & TIPS)
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Roll No. of candidate

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17/2/22 2021

B.Tech 5th Semester Examination (2021-22) New Regulations

MICROPROCESSOR AND EMBEDDED SYSTEM

(New Regulation and New Syllabus)

Full Marks – 70

Time – Three hours

Answer any *ten* questions:

1. (a) Write down the role of ALU, Register Unit and Control unit in a microprocessor. (3)
(b) What are the various internal registers in 8085? Discuss the functions of program counter, stack pointer, flag register and instruction register. (4)
2. (a) Explain the process of de-multiplexing the lower order address cum data bus in 8085 with the of ALE signal with suitable diagram. (3)
(b) Draw the timing diagram of MVI B, data instruction. Also calculate time required for its completion in a 3 MHz clock. (4)
3. (a) Explain the steps that occurs in an 8085 processor during subroutine call instruction stating the register and memory involved. How many T-states are required for completion of the CALL instruction? (4)
(b) Explain the role of a ring counter in the 8085 control unit? Also state why the external clock is internally divided? (3)
4. (a) Explain the process of converting INTR into a vectored interrupt. (4)
(b) Write the classifications of 8085 instructions with example. (3)
5. (a) Write the various addressing modes of 8085 with example. (4)
(b) Explain the functions of POP, PUSH, RET and RAR instructions. (3)
6. (a) The stack pointer contains the address 2400H. State the content of stack and stack pointer after executing the PUSH PSW instruction. (4)
(b) State the bit format of the SIM and RIM instruction and give the function of the individual bits. (3)

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7. (a) Write a program in 8085 to transmit an ASCII character serially with necessary time delays. (4)
- (b) Write a program in 8085 to count the number of even bytes in ten bytes stored from memory location 8500H. Store the count in BCD in 8600. (3)
8. (a) What is BSR mode of 8255? Explain the bit format for using 8255 in BSR mode. (4)
- (b) What is 2-key lock out and N-key rollover as used in 8279. (3)
9. (a) What is the difference between memory mapped I/O and peripheral mapped I/O, absolute decoding and linear decoding? (3)
- (b) Implement interfacing of 4K ROM and 8K RAM with 8085 using absolute decoding mechanism. (4)
10. (a) Implement the interfacing of an A/D converter with 8085 without using 8255 PPI. (4)
- (b) State the bit format of TMOD register in 8051 and state the function of individual bits. (3)
11. (a) Calculate the count value in hex to introduce an approximate time delay of 1ms using 8051 timers. (4)
- (b) Explain how TCON register and IE register (SFR) are used to configure the interrupt system of 8051. (3)
12. (a) Explain the dual functions of port3 of 8051. (4)
- (b) Explain the use of EA and PSEN signal in 8051. (3)
13. (a) State the basic features of an ARM based processor. (4)
- (b) Write the short notes on any two:
- (i) Tristate logic
- (ii) Open collector and bubbled logic
- (iii) Embedded system application (3)

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