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Question Paper Code: 54426

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Fourth Semester

Computer Science and Engineering

15UEC426– MICROPROCESSORS AND MICROCONTROLLERS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. A machine language instruction format consists of CO1-U
(a) Operand field (b) Operation code field
(c) Operation code field & operand field (d) none of the mentioned
2. In BSR (Bit Set-Reset) mode, only port C can be used to CO2-U
(a) set individual ports (b) reset individual ports
(c) set and reset individual ports (d) programmable I/O ports
3. The logical instruction that affects the carry flag during its execution is CO3-U
(a) XRL A (b) ANL A (c) ORL A (d) RLC A
4. What is the difference between LM 34 and LM 35 sensors? CO4-U
(a) one is a sensor and the other is a transducer
(b) one's output voltage corresponds to the Fahrenheit temperature and the other corresponds to the Celsius temperature
(c) one is of low precision and the other is of higher precision
(d) one requires external calibration and the other doesn't require it
5. Which flags are more likely to get affected in status registers by CO5-U
Arithmetic and Logical Unit (ALU) of PIC 16 CXX on the basis of instructions execution?
(a) Carry(C) Flags (b) Zero (Z) Flags
(c) Digit Carry (DC) Flags (d) All of the above

PART – B (5 x 3= 15Marks)

6. Define addressing mode. List the various addressing modes of 8086. CO1-U
7. Give the various modes and applications of 8254 timer? CO2-U
8. Differentiate between timers and counters. Draw the diagram of TCON in 8051. CO3-U
9. Show how to interface DAC with 8051 microcontroller CO4-U
10. What are the modes of operation of timers in PIC microcontroller? CO5-U

PART – C (5 x 16= 80Marks)

11. (a) Discuss the maximum mode configuration of 8086 with a neat diagram. Mention the functions of various signals. CO1-U (16)
Or
(b) Describe the interrupt of 8086 and its types. CO1-U (16)
12. (a) Draw and explain the functional diagram of keyboard and display controller. CO2-U (16)
Or
(b) Explain the need of DMA controller with its functional diagram. CO2-U (16)
13. (a) Explain in detail about the architecture of 8051 microcontroller with a neat diagram. CO3-U (16)
Or
(b) Discuss on the different addressing modes of 8051 with suitable examples. CO3-U (16)
14. (a) Demonstrate the interfacing of the stepper motor with 8051 microcontroller, and explain its interfacing diagram and develop an 8051 program to rotate the stepper motor in both clockwise and anti-clockwise direction. CO4-App (16)
Or
(b) With a neat circuit diagram explain how a keypad is interfaced with 8051 microcontroller and write 8051 ALP for keyboard scanning. CO4-App (16)
15. (a) With a neat diagram discuss in detail about the architecture of PIC micro controller. CO5-U (16)
Or
(b) Explain the memory organization of PIC16F877 microcontroller. CO5-U (16)