

Bhubanananda Orissa School of Engineering



Question Bank of
Microcontroller, Embedded and PLC
For 6th semester
(AE&I and E&TC)

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MICROCONTROLLER, EMBEDDED AND PLC

VST-1

(For ETC and AE&I)

(CODE ETT-602)

Full marks-80

Time: 3 hours

1. Answer all of the following

[2*5]

- a) Define IC Technology
- b) What do you mean by interrupt and list out different types of interrupt?
- c) Define Timer and Counter in 8051 microcontroller
- d) What is digital signal processing and write its application
- e) Define DPTR and PC
- f) What is PSW? What is the function of RXD and TXD?
- g) List out different types of language used in PLC.
- h) Write two example of LOOP and JUMP instruction
- i) Write the characteristics of Embedded System.
- j) What is the meaning of application specific purpose?

2. Answer any (SIX)

[5*6]

- a) Explain basic operation of PLC
- b) Write the steps for PLC program
- c) Explain LCD controller with block diagram
- d) Write a program to convert BCD to Hexadecimal number
- e) Explain programmable logic device.
- f) Explain addressing mode of 8051 microcontroller with suitable example
- g) Write a program for generating 1ms delay using 8051 timer

3. Answer any (THREE)

[10*3]

- a) Draw the architecture of PLC and explain different component of PLC
- b) Explain different types of Instruction set with suitable example.
- c) Explain Register bank and SFR
- d) Explain different types of Processor Technology
- e) Write Short Notes on(Any TWO)
 1. Watch dog Timer
 2. LCD controller
 3. Programming model
 4. PLD

MICROCONTROLLER, EMBEDDED AND PLC

VST-02

(For ETC and AE&I)

(CODE ETT-602)

Full marks-80

Time:3hours

1. Answer all of the following

[2*5]

- a) What do you mean by embedded system?
- b) Differentiate full custom and semicustom design
- c) Write the shortlist of embedded system
- d) What is RTC?
- e) Define NRE cost and differentiate NRE cost and UNIT cost
- f) What is PSW and write the bit position of flag register
- g) Define PLC and write its application
- h) What is PLD?
- i) What is the function of XTAL in 8051 microcontroller?
- j) List out different types of Instruction set and addressing mode.

2. Answer any (SIX)

[5*6]

- a) Explain a digital camera with neat and suitable block diagram
- b) Explain processor technology
- c) Explain register bank in 8051
- d) Explain Watch Dog Timer
- e) Explain DS-12887 chip and its interfacing
- f) Differentiate PLC and Computer
- g) Write an assembly language program for adding two 8-bit numbers.

3. Answer any (THREE)

[10*3]

- a) Explain architecture of 8051 microcontroller.
- b) Explain programming model of 8051.
- c) What is the difference between pin diagram and architecture and explain pin configuration of 8051 microcontroller
- d) Explain different types of addressing mode with suitable example.
- e) Write Short Notes on(Any TWO)
 1. Programmable Logic Controller
 2. IC Technology
 3. Digital signal processing

MICROCONTROLLER, EMBEDDED AND PLC

VST-3

(For ETC and AE&I)

(CODE ETT-602)

Full marks-80

Time: hours

1. Answer all of the following

[2*5]

- a) Define Microcontroller
- b) Give any two example of JUMP and CALL Instruction
- c) Define semi Custom IC technology.
- d) What are the various port available in 8051
- e) What is PSEN?
- f) Give two example of program branching Instruction.
- g) Draw the simple block diagram of 8051
- h) What is the function of ALE?
- i) Write the function of TMOD
- j) What is the difference between LCALL,ACALL and also write its instruction length.

2. Answer any (SIX)

[5*6]

- a) Explain briefly about LCD Controller
- b) Discuss different types of embedded system technology
- c) Write the difference between microprocessor and microcontroller.
- d) Explain TMOD register with example
- e) With a neat diagram describe basic operation of PLC
- f) Write a program to multiply data in R_1 and R_2 adding the 16 bit result to R_5 and R_6
- g) Explain internal instruction of PLC.

3. Answer any (THREE)

[10*3]

- a) Explain different types of Instruction set with suitable example.
- b) Describe briefly the concept of PLC programming with example.
- c) Give a briefly discussion about programming model and interrupt priority control
- d) Explain port structure and operation of 8051 Microcontroller
- e) Write Short Notes on (Any TWO)
 1. Program branching Instruction
 2. Digital Camera
 3. LCD controller

FULL MARKS-15

BRANCH- AE&I

SUB- MICROCONTROLLER QUIZ

1. What do you mean by micro in microcontroller?

- a) Distance between 2 IC's
- b) Distance between 2 transistors
- c) Size of a controller
- d) Distance between 2 pins

2. What is the bit size of the 8051 microcontroller?

- a) 8-bit
- b) 4-bit
- c) 16-bit
- d) 32-bit

3. Name the architecture and the instruction set for microcontroller?

- a) Van- Neumann Architecture with CISC Instruction Set
- b) Harvard Architecture with CISC Instruction Set
- c) Van- Neumann Architecture with RISC Instruction Set
- d) Harvard Architecture with RISC Instruction Set

4. Number of I/O ports in the 8051 microcontroller?

- a) 3 ports
- b) 4 ports
- c) 5 ports
- d) 4 ports with last port having 5 pins

5. Is ROM is used for storing data storage?

- a) True
- b) False

6. SCON in serial port is used for which operation?

- a) Transferring data
- b) Receiving data
- c) Controlling
- d) Controlling and transferring

7. Program counter stores what?

- a) Address of before instruction
- b) Address of the next instruction
- c) Data of the before execution to be executed
- d) Data of the execution instruction

8. Auxiliary carry is set during which condition?

- a) When carry is generated from D3 to D4
- b) When carry is generated from D7
- c) When carry is generated from both D3 to D4 and D7
- d) When carry is generated at either D3 to D4 or D7

9. What is order of the assembly and running 8051 program?

- i) Myfile.asm
- ii) Myfile.lst
- iii) Myfile.obj
- iv) Myfile.hex
- a) i,ii,iii,iv
- b) ii,iii,I,iv
- c) iv,ii,I,iii
- d) iii,ii,I,iv

10. The use of Address Latch Enable is to multiplex address and data memory.

- a) True
- b) False

11. Which pin provides a reset option in 8051?

- a) Pin 1
- b) Pin 8
- c) Pin 11
- d) Pin 9

12. External Access is used to permit _____

- a) Peripherals
- b) Power supply
- c) ALE
- d) Memory interfacing

13. What is the address range of SFRs?

- a) 80h to feh
- b) 00h to ffh
- c) 80h to ffh
- d) 70h to 80h

14. How many interrupts are there in micro controller?

- a) 3
- b) 6
- c) 4
- d) 5

15. Timer 0 is a _____ bit register.

- a) 32-bit
- b) 8-bit
- c) 16-bit
- d) 10-bit

Best of Luck

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