

FACULTY OF ENGINEERING & TECHNOLOGY
T.E. Engg.(EEP/EE/EEE) Year Examination-June-2015
Microcontroller & Applications
(Revised)

Time: Three Hours

Maximum Marks: 80

“Please check whether you have got the right question paper.”

- i) Solve three questions from each section.
- ii) Q. No. 1 and Q. No. 6 are compulsory.
- iii) Assume suitable data if necessary.

SECTION-A

- | | | |
|-----------|---|----------------------------|
| Q.1 | <ol style="list-style-type: none"> 1) Enlist the importance features of microcontroller. 2) Which types of oscillator is preferred for 80st microcontroller? Why? 3) Is it possible to interface External memory to microcontroller? How? 4) What is stack? How much space can be used for stack in 8051 microcontroller? 5) What is the function of data pointer register in 8051 microcontroller? 6) What is the difference between overflow flag & carry flag ? Explain with suitable example. 7) Explain how bit addressing is distinguished from byte addressing in 8051 microcontroller. | 14 |
| Q.2 | <ol style="list-style-type: none"> a) State and explain different addressing modes of 8051. b) Draw and explain the functional block diagram of 8051 microcontroller. | 06
07 |
| Q.3 | <ol style="list-style-type: none"> a) Write the program to transfer of data bytes from one memory location to another memory location of external RAM. b) Write the instructions. For following operations. <ol style="list-style-type: none"> 1) Move data “25” to register R2 of bank 0. 2) Data “FF” is stored at memory location 45. Write an instruction to move FF to accumulator. 3) Multiply two 8-bit data. | 07
06 |
| Q.4 | <ol style="list-style-type: none"> a) Draw and explain programming model of 8086 microprocessor. b) Draw and explain program status word of 8086. | 07
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| Q.5 | <p>Write short notes on <u>(any three)</u></p> <ol style="list-style-type: none"> 1) Addressing modes of 8086. 2) Overview of 8051 family. 3) Differentiation between microprocessor & microcontroller. 4) Logical instruction of 8051. 5) Serial data transfer in 8051. | 04
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| SECTION-B | | |
| Q.6 | <ol style="list-style-type: none"> 1) Write alternate functions of port 3. 2) Explain how to mask interrupts? 3) Does 8051 support serial & parallel data transfer? Justify your answer. 4) What are types of seven segments LED? Explain with figure. 5) Differentiate between vectored & non-vectored interrupt. | 03
02
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03
03 |
| Q.7 | <ol style="list-style-type: none"> a) Explain the function of Timer/counter section of 8051, with neat block diagram. b) Write 8051 program to initialize timer 0 & timer 1 in mode 0. the external pin.12 (INT0) controls timer 0, and timer 1 is fully controlled by TRI. | 07
06 |

Q.8	a)	Elaborate the functions of SFR that support serial communication.	07
	b)	Write a subroutine to initialize 8051 serial port to operate in mode 0 for transmission.	06
Q.9	a)	Explain interrupt system of 8051 including their properties & vector locations.	06
	b)	Interface stepper motor to 8051 microcontroller. Write a program to rotate it in clockwise direction.	07
Q.10		Write short notes on (<u>any three</u>)	
	1)	DC motors interfacing to 8051 microcontroller.	04
	2)	Interfacing of A/D 0808/0809 with 8051.	05
	3)	Waveform generation using DAC.	04
	4)	Operation of timer/ counter section as counter.	04