

**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"> <li>1) Enlist the importance features of microcontroller.</li> <li>2) Which types of oscillator is preferred for 80st microcontroller? Why?</li> <li>3) Is it possible to interface External memory to microcontroller? How?</li> <li>4) What is stack? How much space can be used for stack in 8051 microcontroller?</li> <li>5) What is the function of data pointer register in 8051 microcontroller?</li> <li>6) What is the difference between overflow flag &amp; carry flag ? Explain with suitable example.</li> <li>7) Explain how bit addressing is distinguished from byte addressing in 8051 microcontroller.</li> </ol> | 14                         |
| Q.2              | <ol style="list-style-type: none"> <li>a) State and explain different addressing modes of 8051.</li> <li>b) Draw and explain the functional block diagram of 8051 microcontroller.</li> </ol>   | 06<br>07                   |
| Q.3              | <ol style="list-style-type: none"> <li>a) Write the program to transfer of data bytes from one memory location to another memory location of external RAM.</li> <li>b) Write the instructions. For following operations.               <ol style="list-style-type: none"> <li>1) Move data “25” to register R2 of bank 0.</li> <li>2) Data “FF” is stored at memory location 45. Write an instruction to move FF to accumulator.</li> <li>3) Multiply two 8-bit data.</li> </ol> </li> </ol>  | 07<br>06                   |
| Q.4              | <ol style="list-style-type: none"> <li>a) Draw and explain programming model of 8086 microprocessor.</li> <li>b) Draw and explain program status word of 8086.</li> </ol>   | 07<br>06                   |
| Q.5              | <p>Write short notes on <u>(any three)</u></p> <ol style="list-style-type: none"> <li>1) Addressing modes of 8086.</li> <li>2) Overview of 8051 family.</li> <li>3) Differentiation between microprocessor &amp; microcontroller.</li> <li>4) Logical instruction of 8051.</li> <li>5) Serial data transfer in 8051.</li> </ol>   | 04<br>04<br>04<br>04<br>05 |
| <b>SECTION-B</b> |   |                            |
| Q.6              | <ol style="list-style-type: none"> <li>1) Write alternate functions of port 3.</li> <li>2) Explain how to mask interrupts?</li> <li>3) Does 8051 support serial &amp; parallel data transfer? Justify your answer.</li> <li>4) What are types of seven segments LED? Explain with figure.</li> <li>5) Differentiate between vectored &amp; non-vectored interrupt.</li> </ol>   | 03<br>02<br>03<br>03<br>03 |
| Q.7              | <ol style="list-style-type: none"> <li>a) Explain the function of Timer/counter section of 8051, with neat block diagram.</li> <li>b) Write 8051 program to initialize timer 0 &amp; timer 1 in mode 0. the external pin.12 (INT0) controls timer 0, and timer 1 is fully controlled by TRI.</li> </ol>   | 07<br>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 ACD 0808/0809 with 8051.	05
	3)	Waveform generation using DAC.	04
	4)	Operation of timer/ counter section as counter.	04