

23/11/12  
SEM-VI

M.E.S  
Y.T.I.E.T. | ENGG. | LIB | SEM, VI | B.M./M.E.S. | 23/11/12

VT-S.H Exam Nov-12-116  
Con. 9315-12.

Biomed = (09)

KR-8696



( 3 Hours )

Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.  
(2) Attempt any **four** questions from remaining **six** questions.  
(3) Assume **suitable** data if **necessary**.  
(4) Assumptions made should be **clearly** stated.

1. (a) Explain stack of 8051. 20  
(b) Explain the PCON SFR of 8051.  
(c) What is the execution time for a single instruction of 8051 with 12 MHz clock ?  
(d) Define embedded system. What are the various components of an Embedded system ?
  
2. (a) Explain the TMOD and TCON register in detail. 10  
(b) Explain different modes of Timers in 8051. Explain any two modes in detail. 10
  
3. (a) Write a program to transfer message "Microcontrollers" serially at 9600 baud rate. 10  
Transfer message continuously.  
(b) Explain the following instructions of 8051 :- 10
  - (i) MOVC A, @ DPTR
  - (ii) CJNE A, ≠ data, relative
  - (iii) XRL A, data
  - (iv) SWAP A
  - (v) DIV AB
  
4. (a) Draw and explain the structure of port 1 of 8051. 10  
(b) Explain the Embedded software development cycle. 10
  
5. (a) Explain the concept of device drivers and explain device servicing using ISR. 10  
(b) Explain serial communication using, 'IZC', 'CAN' and advanced I/O buses. 10
  
6. Design a microcontroller based system with the following specifications :- 20
  - (a) CPU-8051
  - (b) 32 KB program memory
  - (c) 8 KB Data memory
  - (d) Two 8-bit O/p points
  - (e) Half duplex serial port.Draw the layout showing the support chips, signals, memory map and design.
  
7. Write short notes on the following :- 20
  - (a) Power saving modes of 8051
  - (b) PCI and PCI-X bus
  - (c) Deadline and Interrupt Latency
  - (d) Processor and memory selection for embedded systems.