

**B.Tech. - VIEP - ELECTRONICS AND
COMMUNICATION ENGINEERING
(BTECVI)**

Term-End Examination

00033

June, 2018

BIEL-008 : MICROCONTROLLERS

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. Assume suitable data, if any. Use of scientific calculator is allowed.

1. (a) What are the features of Harvard architecture and Von Neumann architectures ? 5
- (b) Explain RISC and CISC processors. 5

2. With the help of block diagram, explain the features of 8051 microcontroller. Explain the different power saving modes used in microcontroller 8051. 10

3. Which port of 8051 does not have any alternate function and can be used solely for I/O ? Which port of 8051 is bit addressable ? What are the advantages of bit addressability of 8051 ? 10

4. (a) Give the format of PSW 8051. What is the difference between carry and overflow flags of PSW ? 5
- (b) Differentiate between embedded microcontrollers and external memory microcontrollers. 5
5. (a) Describe addressing modes of 8051. Give an example of each. 5
- (b) Explain TMOD and TCON of 8051 microcontroller. Also discuss the format and bit definitions of it. 5
6. (a) With the oscillator frequency of 11.0592 MHz, find the TH1 value needed to have the following baud rates : 9600, 2400 and 1200. 5
- (b) How are interrupts processed in 8051 ? 5
7. (a) Discuss the signal description of 8051 : 5
- (i) $\overline{\text{ALE/PROG}}$
- (ii) $\overline{\text{PSEN}}$
- (iii) $\overline{\text{EA/VPP}}$
- (b) Explain in detail, Watchdog Timer. 5

8. How will you interface 8-bit ADC with 8051 microcontroller ? Explain with the help of block diagram and necessary interfacing signals. 10
9. What are RS-232 standards ? Explain the necessity of RS-232 to TTL interface. Draw the circuit diagram and indicate the signals. 10
10. Write short notes on any *two* of the following : 2×5=10
- (a) Interrupts in 8051 with priority
 - (b) 8051 Serial Communication
 - (c) Jump and Call Instructions
-