Total No. of Questions – [04] Total No. of Printed Pages 02

G.R. No.	

Paper Code: U359-132(T1)

OCTOBER 2019/ INSEM (T1)

T. Y. B. TECH.

(ELECTRONICS AND TELECOMMUNICATION)

(SEMESTER - I)

COURSE NAME: MICROCONTROLLER AND APPLICATIONS

COURSE CODE: ETUA31172

(PATTERN 2017)

Time: [**1 Hour**] [Max. Marks: **30**]

(*) Instructions to candidates:
1) **Answer Q.1 OR Q.2 and Q.3 OR Q.4.**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q. 1) a) Explain the use of following pins of 8051 microcontroller. 6 Marks
i. *ALE* ii. $\overline{PSEN}$ iii. $\overline{EA}$ iv. $\overline{RD}$ / $\overline{WR}$

b) Draw the PORT1 structure of 8051 microcontroller and explain the reading and writing process over the pins of it. 6 Marks

c) Compare Von-Neumann and Harvard architecture. 4 Marks

OR

Q. 2) a) Interface 4Kbytes of data and 8 Kbytes of program memory with 8051 microcontroller. Clearly indicate the necessary pins in the interface diagram. 6 Marks

b) What are interrupts? Where they are used? 6 Marks
Draw the IE register, and configure it to enable timer interrupts and disable others.

c) An engineer has designed 8051 microcontroller based system for collecting the temperature relative humidity and other parameters normally used in analysis of weather conditions. The system is placed at few meters away from the control room, and wants to transfer the data to the computer in control room 4 Marks

periodically suggest him a low cost and efficient method for transferring the data.

Q. 3) a) Write an assembly language program in 8051 to generate 1KHz square wave with 50 % duty cycle at P1.0 using a delay subroutine. Use NOP and DJNZ instructions in subroutine which takes 1 µsec and 2 µsec respectively when microcontroller operated at 12 MHz. 6 Marks

b) Describe the following addressing modes with example 4 Marks
   i. Register addressing mode
   ii. Indirect addressing mode.

c) What is Logic Analyzer? List the features of Logic Analyzer. 4 Marks

OR

Q. 4) a) Write an assembly language program in 8051 to transmit a letter **"V"** over a serial port with 9600 baud continuously. 6 Marks

b) Explain the following Instructions with suitable example 4 Marks
   i) RRC A ii) MUL AB

c) What is assembly language programing? What is .asm and .hex/.obj files? Explain. 4 Marks