

Total No. of Questions - [3]

Total No. of Printed Pages: 1

G.R. No.	
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PAPER CODE	U222-242(ESE)
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May 2022 (ENDSEM) EXAM
S.Y. B. TECH. (SEMESTER - II) - E&TC
COURSE NAME: Microcontroller and Applications
COURSE CODE: ETUA22202
(PATTERN 2020)

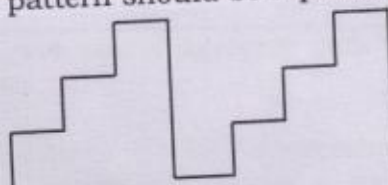
Time: [1Hr]

[Max. Marks: 30]

(*) Instructions to candidates:

- 1) Figures to the right indicate full marks.
- 2) 'a' part of every question is compulsory
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

- Q.1 a) Sketch the interfacing of 4x4 matrix keyboard with 8051 microcontrollers with explanation. [4]
- b) With suitable DAC interfacing diagram with 8051 microcontrollers, write a program in assembly language to generate a staircase waveform as shown below. The pattern should be repeated continuously. [6]



OR

- b) A switch is connected to P1.7. Write a assembly language program to check the status of switch and perform the following: [6]
1. if switch = 0, send letter "N" to P2.
 2. if switch = 1, send letter "Y" to P2.
- Q2 a) Compare I2C, SPI protocol with respect to speed and hardware implementation. [4]
- b) Write an ALP to transfer serially 'Reunion fest VIIT' continuously with baud rate 9600. Explain how to calculate Baud rate. [6]

OR

- b) Discuss RTC interfacing with microcontroller. Write an ALP to get values of hour, minute and second from RTC to RAM location 40h, 41h and 42h respectively. [6]
- Q.3 a) With diagram elaborate the internal architecture of AVR ATmega32 microcontroller. [4]
- b) Illustrate stepper motor interfacing, stepper motor that runs at 5 V and 1 Amp to interface with ATmega32 microcontroller with appropriate diagram. [6]

OR

- b) Illustrate the registers related to ADC of ATmega32. [6]