Total No. of Questions : 8] **SEAT No. : P-314** [Total No. Of Pages : 2 [6003]-394 T.E. (E & TC) MICROCONTROLLERS (Semester-I) (2019 Pattern) (304184) Max. Marks : 70 Time : 2¹/₂ Hours] Instructions to the condidates Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 and Q7 or Q8. *1*) Neat diagrams must be drawn wherever necessary. 2) Figures to the right indicate full marks. 3) Use of calculator is allowed. **4**) 5) Assume suitable data if necessary. Draw and explain the block schematic of PIC18F4550 MCU unit. *Q1*) a) [6] b) Explain functions of ALU in PIC18F4550 with example. [6] State features of PIC18F4550 c) [6] Explain the criteria for choosing PIC18F184550 Microcontroller. *Q2*) a) [6] Explain PSW of PIC18F455 b) **|6** Draw and explain the data memory organization of PIC18F4550 c) Draw and explain the Timer 0, 8bit operation in details compare the Timer *Q3*) a) 0, 1, and 2[9] Write a program for 2.5 KHz and 75% duty cycle PWM generation with **b**) N=4.Fosc=10MHz. [8] OR Write program to generate delay of 10 ms using timer 0, 16 bit and no **Q4**) a) prescaler. [9] b) Explain in details capture mode of PIC18F4550 [8] **P.T.O**

- Explain step wise procedure and design methodology of PIC test board.[6] *Q*5) a)
 - Draw an interfacing diagram of LCD with PIC18F4550 and explain function b) of RS and EN. [6]

[6]

[8]

Draw port structure with SFRs used in Programming. c)

OR

- Draw an interfacing diagram of LEDs connected to port B and write an **Q6**) a) embedded C program for continuous flashing. [6]
 - Draw an interfacing diagram of 4×4 matrix keyboard and explain the b) concept of key detection. [6]
 - Draw home protection system using motion detectors and IR sensors, c) display the status on LED and LCD. [6]
- State features of SPI bus and compare RS232 and RS 485 **Q7**) a) [9]
 - State features of EEPROM, draw an interfacing diagram with PIC18F4550. b) [8]
- **Q8**) a) Explain use of 12C bus with start, stop and busy condition, compare 12C and SPI bus. [9]
 - Draw and explain block diagram of UART Transmitter. b)

[6003]-394

2