

Total No. of Questions : 8]

SEAT No. :

P-7565

[Total No. of Pages : 2

[6180]-79

T.E. (Electrical)

**ADVANCED MICROCONTROLLER AND EMBEDDED
SYSTEM**

(2019 Pattern) (Semester - I) (303145A) (Elective - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Figures to the right indicate full marks.
- 3) Neat diagrams must be draw,, wherever necessary.
- 4) Assume suitable additional data, if necessary.
- 5) Use of non-p rogrannzable calculator is allowed.

Q1) a) Draw CCP1CON and list the steps involved in programming PIC18F458 microcontroller in capture mode. [9]

b) Explain Speed control of DC motor using PWM mode of CCP module. [8]

OR

Q2) a) List out timers used for CCP module in PIC18F458. Also explain CCP registers used in detail. [9]

b) Explain the steps of PWM Programming in CCP Module. Find the minimum and maximum PWM frequency allowed for XTAL=10MHz. [8]

Q3) a) Enlist Interrupt registers in PIC18F458. Explain any two. [9]

b) Explain Enabling and Disabling of Interrupts in PIC18. Also state the steps to enable interrupts in PIC18. [9]

OR

Q4) a) State steps the microcontroller does perform upon activation of an interrupt. [9]

b) Explain external INTO interrupt programming in PIC18. [9]

P.T.O.

- Q5) a)** Explain in detail the function of following flags related to on board ADE of PIC microcontroller : [8]
- i) ADIF
 - ii) Go/Done
 - iii) ADFM
 - iv) ADON
- b) With the help of interfacing diagram and flow chart, explain how PIC microcontroller can be used to measure temperature using LM35 sensor. [9]

OR

- Q6) a)** Explain ADCON0 and ADCON1 registers in detail. [8]
- b) Draw a neat diagram and flow chart, explain AC voltage measurement using PIC microcontroller. [9]
- Q7) a)** Write a C program for the PIC18 to transfer the message "A" serially at 9600 baud, 8-bit data, 1 stop bit. Do this continuously. Assume XTAL = 10MHz. [9]
- b) Compare synchronous and asynchronous serial communication. [9]

OR

- Q8) a)** Draw and explain the block diagram of USART transmitter in PIC18. [9]
- b) Explain the SPBRG register uses. Also find the value to be loaded in SPBRG register to have baud rate of 4800 and $F_{osc}=10\text{MHz}$. Assume asynchronous mode and low baud rate. [9]
