

Total No. of Questions : 8]

SEAT No. :

PD4269

[Total No. of Pages : 3

[6403]-65

T.E. (Electrical)

ADVANCED MICROCONTROLLER AND EMBEDDED SYSTEM

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

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Use of calculator is allowed.*
- 5) *Assume suitable data if necessary.*

Q1) a) List out timers used for CCP module in PIC18F458. Also explain CCP registers used in detail. **[8]**

b) Write embedded C program to generate PWM of 5KHz with 40% duty cycle and Prescaler N=4. **[9]**

OR

Q2) a) Draw CCP1CON and list the steps involved in programming PIC18F458 microcontroller in PWM mode. **[8]**

b) How DC motor speed control is achieved using PWM mode of CCP module of PIC18F458. **[9]**

Q3) a) Write a short note on interrupt structure of PIC18F458 microcontroller. **[9]**

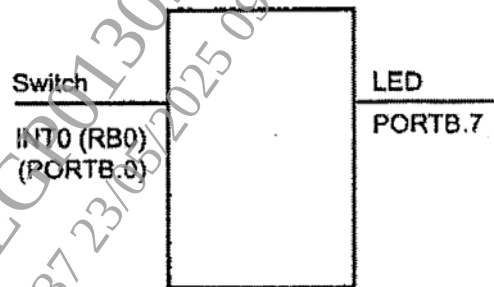
b) Assuming crystal frequency = 10MHz, write a program in C language to generate square wave form with a frequency of 25kHz on PORTB.4. Use timer 0 in 8bit mode without a prescaler. **[9]**

OR

P.T.O.

Q4) a) Enlist Interrupt registers in PIC18F458. Explain any two. [9]

b) Write a C Program for PIC18 to toggle the LED connected to pin7 of the PORT B every time INT0 is activated by a switch connected at INT0(RB0). Assume XTAL=10MHz. [9]



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 features of on-board ADC of PIC18F458. Also explain in detail the functions of ADIF and ADFM bits. [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) List the steps for programming PIC18 to receive the data serially. [9]

OR

Q8) a) Compare serial and parallel data transfer. Also list the registers associated with transmission and reception modes of USART. [9]

b) Explain the SPBRG register uses. Also find the value to be loaded in SPBRG register to have baud rate of 4800 and Fosc=10MHz. Assume asynchronous mode and low baud rate. [9]

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