Q.22 What is the purpose of an optoisolator in motor control circuits? Explain its function with respect to motor control using PIC18. (CO4)

SECTION-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x8=16)

Q.23 Elaborate in detail about PIC18 timer programming in C. (CO3)

Q.24 Explain with neat and clean diagram DC Motor Interfacing with PIC18. (CO4)

Q.25 Discuss the features of PIC18F458 microcontroller with the help of block diagram. (CO2)

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6th Sem. / Automation & Robotics
Sub.: Embedded Systems

Time : 3 Hrs. **M.M. : 60**

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (6x1=6)

Q.1 What is the primary characteristic of an embedded system? (CO1)

a) General purpose computing

b) Specific task-Oriented

c) High Speed processing

d) Large memory capacity

Q.2 Which of the following is a feature of the PIC18F458 microcontroller? (CO2)

a) 32 KB of program memory

b) 16 KB of program memory

c) 8 KB of program memory

d) 4 KB of program memory

Q.3 Which pin on the PIC 18 F458 is responsible for the reset function? (CO2)

a) Pin 1 b) Pin 2

c) Pin 3 d) Pin 4

Q.4 How do you introduce a time delay in a PIC microcontroller using C programming ? (CO3)

a) Using loops b) Using timers

c) Both A & B d) None of the above

Q.5 Which device can be used for converting digital data to analog in PIC18 interfacing? (CO3)

a) DAC b) ADC

c) LCD d) Keyboard

Q.6 Which of the following is used for controlling the operation of a stepper motor with a PIC18? (CO4)

a) Relays

b) Optoisolators

c) Both relays and optoisolators

d) Only stepper driver circuits

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Who introduced the first embedded system? (CO1)

Q.8 The TRIS register is used to configure the _____ ports as input or output. (CO2)

Q.9 The PIC 18F458 microcontroller has a _____ (RISC/CISC) architecture with a 16 bit instruction word. (CO2)

Q.10 What type of data is typically read from a sensor interfaced with PIC18? (CO4)

Q.11 The LCD interface is used to display _____ characters on an LCD display. (CO3)

Q.12 The DC motor interface is used to control the _____ of a DC motor. (CO4)

SECTION-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

Q.13 Differentiate between general purpose computers and embedded systems. (CO1)

Q.14 Explain the architecture of an embedded system and its key components? (CO1)

Q.15 Draw the pin diagram of the PIC18F458 microcontroller. (CO2)

Q.16 Describe the history and key features of the PIC microcontroller family. (CO1)

Q.17 Explain the different data types used in C programming for the PIC18 micro controller and their usage. (CO2)

Q.18 Describe the procedure for performing I/O operations in C for the PIC18 microcontroller. (CO3)

Q.19 Explain how an LCD is interfaced with the PIC18 microcontroller. (CO3)

Q.20 Explain how a DAC is interfaced with PIC18 and how it converts digital values to analog signals. (CO3)

Q.21 Describe the steps for interfacing a stepper motor with the PIC18 micro controller and controlling its rotation. (CO4)