

14. The ADCON1 register is set with a value of 0xFBH. Calculate the number of analog sensor inputs supported by PIC16F877 MCU?
15. Consider the MCU is executing a direct addressing mode instruction. If the STATUS registers of PIC 16F877 MCU is set with 0x78H. Calculate the range of addressing space to be accessed by the CPU during the execution of program transfer instruction?
16. Specify the proper TTL voltage levels for logic HIGH and LOW?
17. What is the time delay provided by the Power-up timer of PIC16F877 microcontroller on power-up? Assume the crystal connected to the MCU is of 20 MHz.
18. The CCP module of PIC16F877 MCU is configured in PWM mode. The parameters set are given below,
 1. TMR2 prescalar value =1
 2. PR2 = 0x3FH
 3. Crystal = 20 MHz
 Calculate the Maximum PWM resolution obtained by the CCP module?
19. If the FSR and STATUS register contain values of 0x5AH and 0xD9H. Calculate the location of data in memory in indirect addressing mode?
20. 8-level stack in PIC16F877 MCU is used to store _____ during subroutine and ISR call.
21. If the PIC16F877 MCU is clocked at 20 MHz, calculate the minimum time period required by the ADC to produce the 10-bit result?
22. The OPTION_REG is set with a value of 0xC5H. TMR0 register is loaded with a value of 0xA5H. Calculate the Timer0 overflow time period? XTAL=20MHz.
23. A 16 MHz crystal is connected to PIC 16F877 MCU. The MCU is expected to execute 1111 instructions. Calculate the time period to complete the execution of 1111 instructions. Assume all the instructions are single cycle instructions.
24. The values loaded into CCP1L and CCP1CON register are 0x3FH and 0x78H. If the TMR2 prescale value is set to 1, calculate the PWM duty cycle in time? XTAL= 20 MHz
25. What is the maximum operating speed of PIC16F877 MCU?
26. Let us assume the PIC16F877 MCU is connected with 10 MHz crystal. Timer1 of MCU is configured with a prescale value of 1:256. Calculate the largest time delay produced by the Timer1 (Initial value = 0x0000)?
27. Which type of reset will get activated during the fluctuation of the input power to PIC 16F877 MCU?
28. Which timer in PIC16F877 MCU could not be used in counter mode of operation?
29. A 10 MHz crystal is connected to PIC 16F877 MCU. The MCU is expected to execute 1000 instructions. Calculate the time period to complete the execution of 1000 instructions. Assume all the instructions are single cycle instructions.
30. The 10-bit ADC of PIC16F877 MCU is connected with the sensor input voltage of 3.3 V. If the reference voltage to the ADC is about 4 V, calculate the resolution of ADC and the binary bit pattern obtained after the conversion process?
31. The CCP1 module in PIC16F877 MCU is configured in Capture mode by setting the configuration registers such as CCP1CON and T1CON with the values of 0x05H and 0x35H, respectively. The TMR1H:TMR1L register is initialized to 0x0000H. If the external event happens to occur at 104.8 ms

from the activating time of Timer1. Then, what will be value captured by the CCP1 module? Assume XTAL = 20 MHz.

32. The PWM signal is generated using the CCP1 module of PIC16F877 MCU. The MCU is connected with a crystal oscillator of 20 MHz. The PR2 register is set with a value of 0xFFH. Timer2 prescaler is set to 16. Calculate the generated PWM signal frequency?
33. To configure the External interrupt on rising edge of RB0/INT pin, what should be the value to be programmed in OPTION_REG and INTCON registers?
34. The PIC 16F877 MCU is connected with 20 MHz crystal for its operation. The PR2 register is loaded with a value of 0x0AH. The TMR2 register is initialized with 0x00H. The prescaler and postscaler is set with a ratio of 1:1 and 1:4, respectively. Calculate the time period at which the Timer2 interrupt will be generated?
35. What will be the maximum resolution of PWM signal generated by CCP module in PIC16F877 MCU?
36. If the FLAG_REG is set with a value of 0xC7H, what will be the output after executing the following instruction?
BCF FLAG_REG, 7
37. What will be the value of status flags and output after executing the following instruction?
SUBWF REG1, 1
Initial values: REG1 = 3, W = 2, C = 1, Z = 1
38. Which pin of PORTA is available as open drain output in PIC16F877 MCU?
39. Consider the CCP1 module of PIC 16F877 MCU is configured in Compare mode, set output on match. The CCPR1H:CCPR1L is set with a value of 0xFFFFH. The configuration registers such as CCP1CON and T1CON registers are set with a value of 0x08H and 0x35H, respectively. The TMR1H:TMR1L register is initialized to 0x0000H. After starting the Timer1, specify the time at which the RC2 pin will be set to HIGH? Assume XTAL = 20 MHz.
40. The CCP1 module in PIC16F877 MCU generates a PWM signal with a frequency of 1.22 kHz. The timer2 is set with the prescaler value of 16. The MCU is connected with a 20MHz crystal for its operation. Determine the maximum PWM resolution in bits for a given PWM frequency?
41. What will be the output of the following program?
BCF TRISC, 3
LABEL: BSF PORTC, 3
CALL DELAY
CALL DELAY
BCF PORTC, 3
CALL DELAY
BRA LABEL
42. The number of bits required for accessing the program memory (PM) and data memory (DM) by the PIC 16F877 microcontroller are _____
43. If the required data is available in bank 2 of data memory. To access it, what should be value of STATUS register in PIC16F877 microcontroller?
44. The oscillator start-up timer (OST) counts up to _____ oscillations from the crystal/resonator circuit connected to OSC1 pin. During that time period the PIC 16F877 MCU will be in RESET state, waiting for the oscillator to generate a stable square wave output.

45. In PIC 16F877 microcontroller, the program counter is loaded with _____ value, if the registers PCL and PCLATH contain a value of 0xA0H and 0x50H. Assume the instruction specified contain PCL as destination.
46. The PIC16F877 microcontroller is connected with 16 MHz crystal oscillator. Calculate the Timer0's clock frequency if the timer0's prescaler is set with a value of 1:64.
47. Calculate the minimum time period required to detect edge triggered interrupts in PIC16F877 MCU? Assume XTAL = 16 MHz.
48. The instruction in a PIC microcontroller requires a minimum execution time frame of _____.
49. When a POR signal is asserted, the PIC16F877 MCU will be in RESET state for a time period of about _____.
50. Calculate the minimum time period required to convert the input voltage provided to the ADC of PIC16F877 microcontroller. Assume ADC conversion time per bit is 1.6 μ s.
51. The PWM module of PIC 16F877 MCU is with 10-bit resolution. Which registers contain the 10-bit value?
52. The CCP1 module in PIC16F877 MCU is configured in compare mode to generate a square wave with 50% duty cycle. The square wave has a time period of 40 ms. If Timer1 is initialized with a value of 0x0000, calculate the value to be loaded in CCPR1H:CCPR1L registers? Assume XTAL = 10 MHz.
53. The PWM frequency generated by the CCP1 module of PIC16F877 MCU is 25 kHz. Find the value which needs to be loaded into the PR2 register to generate the above specified frequency. Assume XTAL = 10 MHz and Prescaler = 1.