Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

B.Tech. Winter 2022 - 23 Examination

Semester: 7 **Date: 08/10/2022**
Subject Code: 203113431 **Time: 10:30 am to 01:00 pm**
Subject Name: Advanced Micro-Computing Systems **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions **(15)**

1. How much flash memory does the Atmega328 have?
   (a) 13K bytes (b) 32K bytes
   (c) 256K bytes (d) 16K bytes

2. How many timers does the Atmega328 have?
   (a) 1 (b) 2
   (c) 3 (d) 4

3. How many comparators does the Atmega328 have?
   (a) 1 (b) 2
   (c) 3 (d) 4

4. Does the Atmega328 have an index corner?
   (a)Yes (b) No

5. How many General-Purpose Registers are present in the Atmega328?
   (a) 12 (b) 64
   (c) 32 (d) 9

6. The Atmega328 is an _____ bit chip.

7. The Atmega328 is a ___ SC Microcontroller.

8. There are __ ADC and __ PWM Pins on the Atmega328.

9. Arduino Codes are referred to as _____ in the Arduino IDE.

10. What is the use of the Proximity Sensor?

11. How many clock pulses are confined by each machine cycle of Peripheral-Interface Controllers?

12. What type of architecture is there in PIC micro controller?

13. What is CISC architecture?

14. What is the microcontroller used in Arduino MEGA?

15. What does p refer to in ATmega328p?

Q.2 Answer the following questions. (Attempt any three) **(15)**

A) What are the important peripheral features of Atmega328P microcontroller?

B) Explain the concept of GPIO in Atmega-328P based Arduino Board with the help of block diagram.

C) Write the features of the PIC16fXX Microcontroller.

D) Draw and explain each pin of PIC16Fxx Microcontroller.

Q.3 A) With interfacing diagram explain seven-segment interfacing with ARDUINO UNO and write a program to display 9 to 0 with appropriate delay between the displays of the subsequent digits. **(07)**

B) Discuss in detail about the function of watchdog timer of PIC micro controller **(08)**

OR

B) Discuss in detail about the function of ports A, B and E of PIC micro controller. **(08)**

Q.4 A) Write a program to interface Bluetooth module with Arduino UNO. Also, draw the interfacing diagram. **(07)**

OR

A) Explain interfacing of Servo motor with Arduino. Write program to rotate motor in clockwise as well as anticlockwise direction. **(07)**

B) Explain various CPU Registers of PIC microcontroller in detail. **(08)**