

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**B.Tech. Winter 2019 - 20 Examination**

**Semester: 5**  
**Subject Code: 03106332**  
**Subject Name: Arduino & PIC Controller**

**Date: 03/12/2019**  
**Time: 10:30am to 01:00pm**  
**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 - (All are compulsory) (Each of one mark) (15)**

1. How many times setup () runs?  
(A) 1 (B) 2 (C) Infinite (D) 0
2. Which of the following is not an I/O function?  
(A) pinMode() (B) digitalWrite() (C) digitalRead() (D) delay()
3. Which of the following is not a version of the Arduino?  
(A) Tre (B) Galileo (C) Zero (D) Leonardo
4. It starts with a /\* and continues until a \*/ What does this do?  
(A) Makes comments (B) Loads a sketch  
(C) Compiles quicker (D) Makes stars appear
5. A program written with the IDE for arduino is called  
(A) IDE source (B) Cryptography (C) Sketch (D) Source code
6. Arduino IDE consists of 2 functions. \_\_\_\_\_ () and \_\_\_\_\_().
7. Arduino UNO used which type of \_\_\_\_\_ microcontroller.
8. If Serial is begun with Serial.begin(9600); \_\_\_\_\_ time will it take to send 2 ASCII characters?
9. \_\_\_\_\_ analog ports does an Arduino have, and they are labeled \_\_\_\_\_.
10. \_\_\_\_\_ sensor can detect nearby objects?
11. What is operating Voltage for Arduino Uno?
12. If we start by writing HIGH out on the pin connected to the LED. The LED will do Turn off.  
(True/False)
13. What does IDE stand for?
14. Which sensor is LM35?
15. How many timers are there in PIC16F8xx microcontroller?

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

- A) Draw and explain ATmega328 Microcontroller pin diagram.
- B) Draw and explain all 8-bits of program status resistor.
- C) Draw and describe SRAM Read/Write Timing for Arduino memory operation.
- D) Explain Watchdog timer PIC16 MPU configurations.

**Q.3 A) Describe PWM control using Arduino. (07)**

- B) Draw and explain AVR Architecture of Arduino. (08)

**OR**

- B) With neat diagram explain the architecture of PIC16F877. (08)

**Q.4 A) Write a C language code for internal LED blinking of Arduino for 1000 millisecond of delay and explain with using diagram. (07)**

**OR**

- A) Write a C language code for Interfacing L293D with Arduino. (07)

- B) Draw diagram for LED brightness control using Arduino and write code for it. (08)