

1. What is Arduino?

- a) Programming language
- b) Image editing software
- c) Open-source electronics platform
- d) Text editor

Answer: c

Explanation: Arduino is an open-source hardware and software platform.

2. How many types of Arduino do we have?

- a) 4
- b) 8
- c) 12
- d) 16

Answer: b

Explanation: There are 4 Arduino boards and 4 Arduino shields that fit on top of Arduino compatible boards to provide additional capability like connecting to the internet, motor controller, LC

3. What language is a typical Arduino code based on?

- a) Assembly Code
- b) Python
- c) Java
- d) C/C++

Answer: d

4. Arduino shields are also called as _____

- a) Another Arduinos
- b) Extra peripherals
- c) Add on modules
- d) Connectivity modules

Ans:c

5. What language is the Arduino IDE built on?

- a) Java
- b) HTML
- c) C/C++
- d) Python

Answer: a

6. How many analog pins are used in Arduino Mega board?

- a) 12**
- b) 6**
- c) 8**
- d) 14**

Ans:b

7. Arduino IDE consists of 2 functions. What are they?

- a) Loop() and build() and setup()
- b) Build() and loop()
- c) Setup() and build()

d) Setup() and loop()

Answer: d

Explanation:

Setup() is called once in the program when a sketch starts after power-up.

It is used to initialize variables, input and output pin modes, and other libraries needed in the sketch.

Loop() is used after setup() been called, function loop() is executed repeatedly in the main program. It controls the board until the board is powered off or is reset.

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

a) sketches

b) drawings

c) links

d) notes

Answer: a

Explanation:

Any Arduino Code that is saved using the Arduino IDE, is referred to as a “sketch” by the Arduino IDE. These “sketches” are nothing but the code saved in a file with the extension name being “.ino”.

11. What is the use of the Arduino.h header file?

a) It enables the programmer to access all of Arduino’s core functionality

b) It doesn’t have any use and can be omitted at any point of time in the code

c) It gives root access to the microcontroller’s file system

d) It allows other people to create libraries for the Arduino code

Answer: a

12. What is the use of the Vin pin present on some Arduino Boards?

- a) To ground the Arduino Board
- b) To power the Arduino Board
- c) To provide a 5V output
- d) Is used for plugging in 3V supply

Answer: b

13. What is the correct execution process of an Arduino code?

- a) Editor->Preprocessor->Compiler
- b) Preprocessor->Editor->Compiler
- c) Compiler->Preprocessor->Editor
- d) Editor->Compiler->Preprocessor

Answer: a

15. Which board is the first to use a microcontroller within the build USB?

- a) RedBoard
- b) Leonardo
- c) LilyPad
- d) UNO

Answer: b

19. Which software is used to upload the Arduino Sketches to the board?

- a) avrgcc
- b) g++
- c) cpython for windows
- d) avrdude

Answer: d

Explanation:

The AVR-GCC/G++ software is a compiler which can take C/C++ code as input and translate or compile it into Binary Code that follows the instruction set for the AVR Microcontrollers. After that process is done, the avrdude software has the job of uploading the hex file to the microcontroller, more specifically the AVR Microcontroller family.

24. Is the Arduino code an Object-Oriented programming language or a Procedural programming language?

- a) The Arduino Code follows the Top-Down Procedural ideology
- b) The Arduino Code follows a custom Procedural Ideology
- c) The Arduino Code follows the Object-Oriented ideology
- d) The Arduino Code follows the Bottom-Up Procedural ideology

Answer: c

Explanation: Since the Arduino Programming Language is a subset of the C++ Programming Language, it supports the Object-Oriented Programming approach much like C++.

25. What is the difference between an IDE and a compiler?

- a) The compiler executes the code while the IDE gives a graphical environment for writing the code
- b) The compiler links the code to the respective files and the IDE takes it from there
- c) The compiler and the IDE are the same thing
- d) The IDE executes the code while the compiler gives a graphical environment for writing the code

Answer: a

26. What will be the output of the following Arduino code?

```
#define X 10;
void setup() {
    X=0;
    Serial.begin(9600);
    Serial.print(X);
}
void loop() {
    //Do nothing...
}
```

a) 0xAB

b) 0xa

c) 0

d) Error

Answer: d

Explanation: In the above code we have attempted to modify the value of X which is initialized using the preprocessing directive “define” which makes its value unchangeable throughout the entire code. Thus, the compiler will throw an error.

30. What is the output of “pin1” if “pin2” is sent “1011” where 1 is 5V and 0 is 0V?

```
1.int pin1 = 12;
2.int pin2 = 11;
3.void setup() {
4.    pinMode(pin1, OUTPUT);
5.    pinMode(pin2, INPUT);
6.    Serial.begin(9600);
7.}
8.void loop() {
9.    if(digitalRead(pin2)==1) {
10.        digitalWrite(pin1,LOW);
11.    }
12.    else if(digitalRead(pin2)==0) {
13.        digitalWrite(pin1,HIGH);
14.    }
15.}
```

a) 1110

b) 0100

c) 1111

d) 1011

Answer: b

33. What will be the output of the following Arduino code?

```
void main() {  
    int a = 0;  
    double d = 10.21;  
    printf("%lu", sizeof(a + d));  
}  
void loop() {}
```

a) 10.21

b) 8

c) null

d) 23

Answer: b

Explanation: The sizes of int and double are 4 and 8 respectively, a is an integer variable whereas d is a double variable. The final result will be a double in this case in order to keep the precision. Hence the output of the code is 8 bytes.

40. What is the objective of the code given below if it is executed on the Arduino Uno?

```
1. #include<EEPROM.h>  
2. int pin=13;  
3. void setup() {  
4.     pinMode(pin, OUTPUT);  
5.     Serial.begin(9600);  
6. }  
7. void loop() {  
8.     for(int i=0; i<EEPROM.length(); i++) {  
9.         EEPROM.write(i, 1);  
10.    }  
11.        digitalWrite(pin, HIGH);  
12.        exit(0);  
13.    }
```

a) Clear EEPROM

b) Fill EEPROM with 1's

c) Export EEPROM data

d) Fill EEPROM with 0's

Answer: b

43. What is the purpose of the following Arduino code?

```
1.void setup() {  
2.    Serial.begin(9600);  
3.}  
4.void setup() {  
5.    Serial.write(40);  
6.}
```

- a) Send a signal to pin 40 on the Arduino board
- b) Send a octal number of 40 through the Serial pins
- c) Send a byte with value 40 through the Serial pins
- d) Send a hexadecimal number of 40 through the Serial pins

Answer: c

47. What is the output of the program given below if a voltage of 5V is supplied to the pin corresponding to the A0 pin on an Arduino UNO?

```
void setup() {  
    Serial.begin(9600);  
    pinMode(A0, INPUT);  
}  
void loop() {  
    int s = analogRead(A0);  
    Serial.println(s);  
}
```

- a) 0
- b) 1023
- c) null
- d) Error

Answer: b

Explanation: The Arduino UNO's analog pins map the value of the sensed voltage to an internal numbering scale which makes it easier for the programmer to work since it is more difficult to analog voltage levels in programming practice. Thus, for a value of 5V, which reaches the maximum limit, we get a value of 1024.

45. W48. What mode should we put the Arduino pin to, in order for object detection to work with the Ultrasonic Sensor?

- a) TDM
- b) PCM
- c) Analog
- d) Digital

Answer: d

Explanation: The TRIGGER pin is to be kept HIGH for a period of 10 microseconds meanwhile the ECHO pin is HIGH for the time period it takes for the sent Ultrasonic wave to return to the sensor. Thus, the entire detection is digital

49. What will happen if we supply a voltage of 25V to the Vcc of the Nokia 5110 GDM?

- a) Module will function normally
- b) Damage is caused
- c) Module will shut down
- d) Module will not respond for the time the voltage is applied

Answer: b

Explanation: The Nokia 5110 Graphical Display Modules are mostly built to work on a voltage range of approximately 3.3V to 5V.

51. What is the way of throwing an error using preprocessing directives to the Arduino Compiler and forcing it to stop compilation?

- a) #warning
- b) #stop
- c) #cut
- d) #error

Answer: d

what is the resolution of the `micros()` function on the Arduino Nano?

- a) 7 Microseconds
- b) 4 Microseconds
- c) 6 Microseconds
- d) 2 Microseconds

Answer: b

35. What is the full form of EEPROM?

- a) Electrically Encoded Programmable Read Only Memory
- b) Encrypted Electronic Programmable Read Only Memory
- c) Electrically Erasable Programmable Read Only Memory
- d) Electronic Embedded Programmable Read Only Memory

Answer: c

38. Why does every compilation of a source code in Arduino check for previous compilations?

- a) To copy the previously generated “.o” files
- b) To relocate the previously generated “.o” files
- c) To delete the previously generated “.o” files
- d) To use the previously generated “.o” files

Answer: d

Explanation: During the compilation process, the Arduino compiler before compilation searches for previously generated “.o” files in the directory, to make the compilation process faster in some cases. This reduces the redundancy of compiling the same parts of the code repeatedly.

46. What is the use of the Interrupt Service Routine in an Arduino?

- a) To boot up the arduino
- b) To exit any code that is running
- c) To automate functions
- d) To make more memory

Answer: c

Explanation: The interrupt service routine can be used to automate a number of functions in an arduino.

39. What type of signal does the analogWrite() function output?

- a) Pulse Code Modulated Signal
- b) Frequency Modulated Signal
- c) Pulse Width Modulated Signal
- d) Pulse Amplitude Modulated Signal

Answer: c

1. What is the operating frequency of the Arduino UNO Board?

- a) 20 MHz
- b) 16 Mhz
- c) 6 MHz
- d) 10 MHz

Answer: b

2. What is the Maximum Operating Voltage of the **Arduino Due**?

- a) 20V
- b) 19V
- c) 5V
- d) 3.3V

Answer: d

2. What is the Maximum Operating Voltage of the **Arduino AtMega2560**?

- a) 20V
- b) 19V
- c) 5V
- d) 3.3V

Answer: c

3. Analog Pins in the Arduino boards work on the principle of PWM. What is the full form of PWM?

- a) Pin Wide Modulation
- b) Pulse Waveform Modulation
- c) Pulse Width Modulation
- d) Pulse Wave Modulation

Answer: c

4. How much Program Memory does the Arduino UNO have?

- a) 24K bytes

- b) 256K bytes
- c) 32K bytes
- d) 2K bytes

Answer: c

Explanation: The Arduino UNO is powered by the ATmega328 Processor

5. Which of the following boards from the Arduino Family is not powered by a variant of the ATmega processors?

- a) Arduino UNO
- b) Arduino Nano
- c) Arduino Mega
- d) Arduino Due

Answer: d

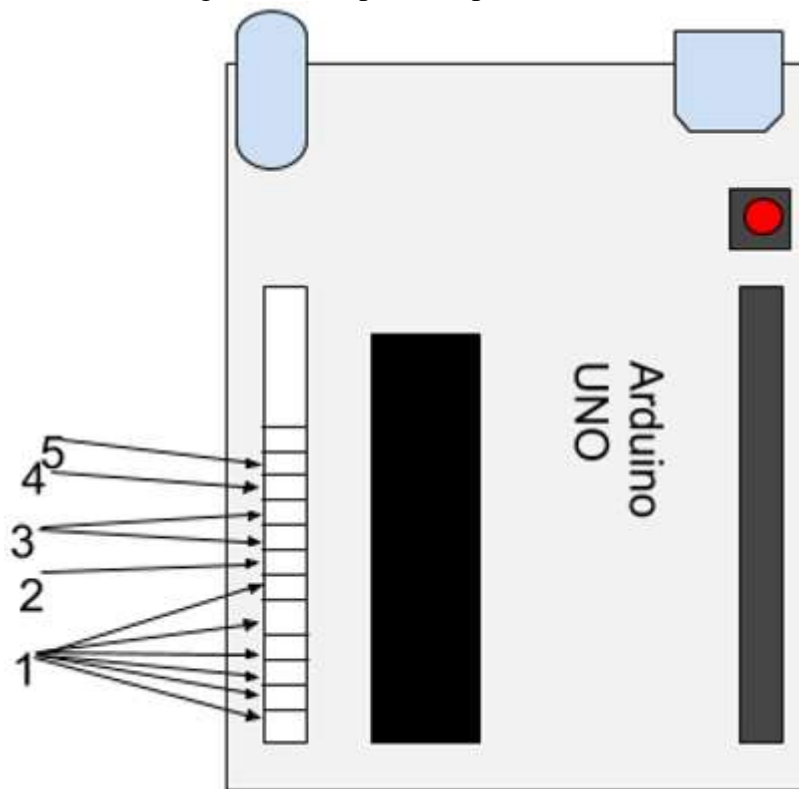
8. The Arduino Diecimila has 14 Digital I/O Pins of which ___ pins can provide PWM output.

- a) 1
- b) 4
- c) 6
- d) 8

Answer: c

Explanation: On the Arduino Diecimila the pins 3, 5, 6, 9, 10, 11 provide 8-bit PWM output. Here PWM refers to Pulse Width Modulation which the Arduino being a digital circuit, uses to replicate analog waveforms for providing traditional voltage specific control.

9. From the diagram below please replace the numeric labels with the pin names.



- a) 1-Analog Pins, 2-Vin, 3-GND, 4-5v, 5-3V3
- b) 1-Analog Pins, 2-Vin, 3-GND, 4-3v3, 5-5V
- c) 1-Analog Pins, 2-Vin, 3-5V, 4-GND, 5-3V3
- d) 1-Analog Pins, 2-5V, 3-Vin, 4-GND, 5-3V3

[View Answer](#)

Answer: a

Explanation: The arduino Uno contains 6 Analog Pins numbered A0-5, 1 Vin Pin, 2 Ground Pins, 1 5V and 1 3V pin, in that order. These pins take an analog input from an external source and use the onboard ADC (Analog To Digital Converter) Circuit to map these voltages ranging from 0-5V to a decimal range of 0 to 1023.

27. Where does the Arduino IDE search if it needs to find out the Name of a type of Arduino Board?

- a) Arduino.h
- b) build.txt
- c) boards.txt
- d) build.core

Answer: c

Explanation: The different types of Arduino Boards which are also commonly referred to as “Variants” are present in the boards.txt file. This is a particularly important file because it contains the different configuration information for different Arduino Boards like which compiler toolchain to execute on a particular variant.

41. What is the use of the SD.h Library in Arduino?

- a) To communicate with the computer
- b) To communicate with the internet
- c) To communicate with the SD Card Module
- d) To communicate with another microcontroller

Answer: c

42. What is the use of the Ethernet library?

- a) To connect the Arduino to Ethernet
- b) To connect the Arduino to Li-Fi
- c) To connect the Arduino to Bluetooth
- d) To connect the Arduino to Wi-Fi

Answer: a

28. How many times does the setup() function run on every startup of the Arduino System?

- a) 4
- b) 5
- c) 2
- d) 1

Answer: d

14. What is the microcontroller used in Arduino UNO?

- a) ATmega32114
- b) AT91SAM3x8E
- c) ATmega2560
- d) ATmega328p

Answer: d

Explanation: ATmega328p is a microcontroller which is 32KB ROM and 8-bit microcontroller.

10. What does p refer to in ATmega328p?

- a) Programmable on chip
- b) Power-Pico
- c) Production
- d) Pico-Power

Answer: d

2. Which Arduino board is famous for integration with fabric-based projects?

- a) The LilyPad
- b) The UNO
- c) The Mega
- d) The Nano

Answer: a

3. Which Arduino Product is not just a board but also comes preinstalled with wheels and a motor board.

- a) The LilyPad
- b) The Robot
- c) The Flora

d) The Mega

Answer: b

6. Which Arduino Board comes with a Linux Distribution?

a) Arduino Nano

b) Arduino Leonardo

c) Arduino Due

d) Arduino Yun

Answer: d

9. What is the default bootloader of the Arduino UNO?

a) AVR-boot

b) GAG

c) Optiboot bootloader

d) Bare box

Answer: c

16. Which Arduino Board contains an onboard joystick?

a) Arduino Nano

b) Arduino UNO

c) Arduino Esplora

d) Arduino Due

Answer: c

18. Which processor supports the Arduino Zero?

a) ARM Cortex M0+

- b) ARM Cortex M3
- c) Atmega32u4
- d) Atmega328P

Answer: a

21. Which Arduino Boards use the Atmega2560?

- a) Arduino Micro and Due
- b) Arduino Nano and Fio
- c) Arduino Mega and Mega ADK
- d) Arduino Uno and Robot

Answer: c

Explanation: Both the Arduino Mega and the Arduino Mega ADK use the Atmega2560, however the only difference between the two boards is that the Arduino Mega ADK was specifically built with Android phones in mind and has a USB to host connector that can plug into your android smartphone.

29. Which of the following statements is not true when dealing with the Firmata library?

- a) The Firmata Library uses the Firmata Protocol for communicating data
- b) The Firmata Library uses the Midi Message Format
- c) The Firmata Library can only be used on an Arduino Uno
- d) The Firmata Library is used to establish communications between the Arduino and the Desktop

Answer: c

Explanation: The Firmata Library is used for communicating data to and from the computer. This is required when the Arduino is required to store certain data on the computer which would be otherwise too large for the Arduino to store in its internal memory. Other uses of this library are in the field of IOT.

31. Which Arduino Board does the SigFox Library work with?

- a) Arduino MKRFOX1200
- b) Arduino MKRZero
- c) Arduino MKRFOX1230
- d) Arduino MKR1000

Answer: a

This set of Arduino Multiple Choice Questions & Answers (MCQs) focuses on “Board Pinout Structure”.

1. What is the use of the RESET button on the Arduino UNO?

- a) To restart the code present in the Arduino
- b) To restore a previous version of a code
- c) To erase the code present in the Arduino
- d) To erase the SRAM in Arduino Microcontroller

Answer: a

2. What is the use of the Vin pin present on some Arduino Boards?

- a) To provide a 5V output
- b) Is used for plugging in 3V supply
- c) To power the Arduino Board
- d) To ground the Arduino Board

Answer: c

3. What does the analogRead() function do physically when invoked in a code?

- a) It accepts a digital Input
- b) Reads the raw voltage value
- c) Activates the ADC Circuit to read voltage values
- d) Activates the DAC Circuit to read voltage values

Answer: c

Explanation: The Arduino has an onboard ADC (Analog to Digital Convertor) Circuit which when invoked by the `analogRead()` function, takes the voltage from the pin that is specified by the program and compares them with the threshold value (5V on the Arduino UNO, 7V on the Arduino Mini and Nano, etc.) and then provides a value ranging from 0 to 1023.

4. What is the use for the 2 serial pins on the Arduino Diecimila?

- a) To send and receive GPIO digital signals
- b) To receive analog signals
- c) To send PWM signals
- d) To send and receive Serial TTL signals

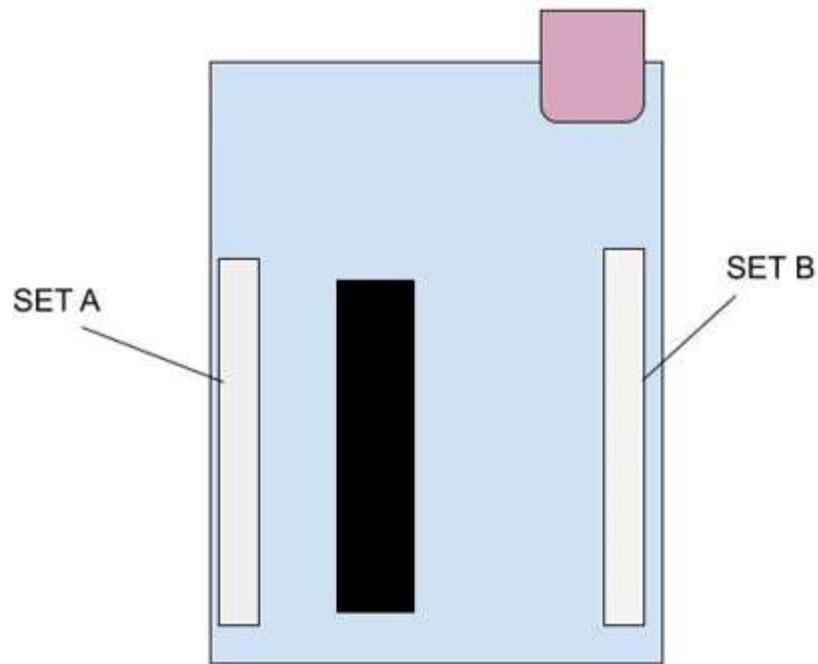
Answer: d

6. What is the full form of the I2C Protocol?

- a) Inter-Integrated Circuit
- b) Intra-Integrated Circuit
- c) Integrated-Inter Circuit
- d) Infinite-Integrated Circuit

Answer: a

9. In the diagram given below, there are two sets given. These sets represent pin clusters on a typical Arduino UNO. Which set do the Digital IO pins on the Arduino UNO belong to?



- a) Set A
- b) Set B
- c) Set A and B
- d) Neither Set A nor B

Answer: b

1. How much flash memory does the Atmega2560 have?

- a) 13K bytes
- b) 200K bytes
- c) 256K bytes
- d) 255K bytes

Answer: c

2. How many timers does the Atmega2560 have?

- a) 1
- b) 2
- c) 4
- d) 6

Answer: d

Explanation: The Atmega2560 has a total of 6 timers, of which 2 are 8-bit timers and 4 are 16-bit timers. The number of bits here represents the resolution of the timers, i.e. the number of bits each timer can store.

3. How many comparators does the Atmega2560 have?

- a) 1
- b) 2
- c) 3
- d) 4

Answer: a

Explanation: A comparator is basically used for comparing voltages. It takes 2 voltages as input and outputs the higher of the two. The Atmega2560 has 1 such comparator only.

4. There are ___ Digital IO and ___ Analog IO Pins on the Atmega2560.

- a) 29, 30
- b) 54, 16
- c) 53, 17
- d) 52, 18

Answer: b

Explanation: The Atmega2560 has 54 Digital IO Pins and 16 Analog Pins, which, on the Arduino Mega are numbered as D0 to D53 and A0 to A15 respectively. From them, pins D2 to D13 support Pulse Width Modulation.

6. What is the operating voltage of Atmega2560?

- a) 12V to 9V
- b) 1.9V to 5V
- c) 2V to 12V
- d) 1.8V to 5.5V

Answer: d

7. The Atmega2560 is an _____ bit chip.

- a) 8
- b) 16
- c) 32
- d) 64

Answer: a

Explanation: The Atmega2560 is capable of processing 8 bits of data at a time and hence it has an 8-bit architecture. Other similar 8-bit processors include the Intel 8080 Processor which ran on a similar 8-bit architecture.

8. Does the Atmega2560 have an index corner?

- a) Yes
- b) No

Answer: a

9. How many General-Purpose Registers are present in the Atmega2560?

- a) 12
- b) 32

c) 64

d) 9

Answer: b

Explanation: There are 32 General-Purpose Registers in the chip and they are all connected to the ALU (Arithmetic Logical Unit) directly which allow 2 registers to be accessed in one instruction in a clock cycle.

2. Can you run an Arduino code in Raspberry Pi or any other microcontroller or embedded system?

a) Yes

b) No

Answer: b4. Is the Arduino programming language a general-purpose language?

a) Yes

b) No

Answer: b

5. Is it possible to write code for the Arduino in any other programming language?

a) Yes, you can write

b) No, it only allows the use of Arduino Code

c) Yes, but you must write the code in C/C++ only

d) Yes, but you must write the code in Python Only

Answer: a

Explanation: The Arduino compiler actually translates or in more technical terms 'compiles' the code into assembly language which uses the Arduino's instruction set. Thus, any other language which has a compiler capable of translating or compiling that code into the Arduino's instruction set in assembly can essentially be used for writing Arduino code.

6. Does the Arduino code get processed by an interpreter or a compiler?

- a) The Arduino code is processed by an interpreter
- b) The Arduino code is first compiled to C++ and then processed using an interpreter
- c) The Arduino code is processed by a compiler
- d) The Arduino code is directly executed by the processor

Answer: c

8. Can external generic C/C++ libraries be imported to the Arduino IDE and used in the code?

- a) Yes, external C/C++ libraries can be used with the Arduino code
- b) No, no external libraries can be imported to the Arduino code
- c) Yes, but only libraries that are approved by the company can be used
- d) Yes, but the libraries must be written in Arduino Code only

Answer: a

This set of Arduino Multiple Choice Questions & Answers (MCQs) focuses on “Preprocessing”.

1. What is the #include Preprocessor Directive used for?

- a) For getting operating system information
- b) For performing read/write operations
- c) For importing header files or other codes into the existing code
- d) For compiling the written code

Answer: c

2. Check the validity of the two statements derived from the two lines of code supplied below.

```
#include<file.h>
#include "file.h"
```

- i. #include<file.h> makes the preprocessor check for file.h only in directories specified by the IDE/Compiler.
- ii. #include "file.h" makes the preprocessor check for file.h in the directory specified within the double quotes.
- iii. Both the lines of code are the same.

a) Statements i, ii and iii are all false

b) Only Statement iii is false

c) Statements ii and iii are true

d) Only statement i is true

View Answer

Answer: b

Explanation: When the preprocessor comes across the above situation, if the file name is surrounded by a double quote then it first navigates to the specified folder or directory and then searches for the specified file. If no directory path is specified, then it searches for the file in the same directory where the existing code file is situated.

3. What is the use of #define?

- a) To define macros
- b) To define pointer variables
- c) To define file names
- d) To create variables

Answer: a

7. Give the output of the following code.

```
8. #ifndef MULTIPLY
9. #define MULTIPLY(A, B) A * B
10. #endif
11. void setup() {
12.     Serial.begin(9600);
13.     int result = MULTIPLY(2, 6);
14.     Serial.print(result);
15. }
16. void loop(){
17.     //Do nothing...
18. }
```

- a) Error
- b) 12
- c) 1
- d) 13

Answer: b

8. What character does the preprocessor look out for whilst searching for commands in the code?

- a) x
- b) @
- c) #
- d) !

Answer: c

9. #warning and #error are two preprocessor directives and the job of #warning is to throw a message to the Arduino IDE. However, which of these preprocessor directives stops the compilation process?

- a) #error
- b) #warning
- c) #include
- d) #define

Answer: a

Explanation: As explained in the question, the job of the #warning preprocessor directive is to throw a message to the Arduino IDE as a warning to notify the user or the programmer of something. However, it does not hinder in the compilation process.

10. How many types of macros are there?

- a) 1
- b) 2
- c) 3

d) 4

Answer: b

1. What compiler toolchain is used to compile the Arduino Sketches?

a) AVR-G++/GCC

b) Python

c) PowerShell

d) Perl

Answer: a

3. What is the use of the Arduino.h header file?

a) It gives root access to the microcontroller's file system

b) It enables the programmer to access all of Arduino's core functionality

c) It allows other people to create libraries for the Arduino code

d) It doesn't have any use and can be omitted at any point of time in the code

Answer: b

4. How many architectures does the Arduino subfolder in the Hardware section contain?

a) 2

b) 3

c) 4

d) 9

Answer: a

Explanation: The Arduino subfolder of the Hardware section contains support for 2 architectures; AVR and SAM.

6. After the compilation process, the file containing the assembly instructions for the microcontroller is stored in a file. What is the file type?

- a) .o
- b) .hex
- c) .cpp
- d) .hpp

Answer: b

Explanation: The assembly instructions for the microcontroller is stored in a hex file. This file contains the assembly instructions in hex format for the microcontroller to understand and execute. It is the binary executable file that allows us to execute the high-level C code on any microcontroller.

7. Which of the following file format is generated once the C code is compiled?

- a) .c
- b) .h
- c) .ino
- d) .o

Answer: d

8. What is the .d file format's use in C?

- a) For managing dependencies
- b) For the D programming language
- c) For storing the variables and memory locations
- d) For creating new errors in dependencies

View Answer

Answer: a

Explanation: The “.d” file format is used for managing and generating the dependency list for a program. A dependency is a supporting program that has the functionality that is required for the smooth and in times, the very execution of another program.

9. Why does every compilation of a source code in Arduino check for previous compilations?

- a) To delete the previously generated “.o” files
- b) To use the previously generated “.o” files
- c) To relocate the previously generated “.o” files
- d) To copy the previously generated “.o” files

Answer: b

Explanation: During the compilation process, the Arduino compiler before compilation searches for previously generated “.o” files in the directory, to make the compilation process faster in some cases. This reduces the redundancy of compiling the same parts of the code repeatedly.

10. How to view each command that gets executed during the compilation process?

- a) Enable Verbose Output
- b) Disable Verbose Output
- c) Show Sketch Folder
- d) Open Serial Plotter

Answer: a

1. Which software is used to upload the Arduino Sketches to the board?

- a) avrdude
- b) avrgcc

- c) g++
- d) cpython for windows

Answer: a

3. What is the use of the dmesg command?

- a) Sending messages to the device connected
- b) Reading messages generated from avrdude
- c) Receiving messages from the gcc compiler
- d) Receiving messages from the particular device

Answer: d

3. What are the two modes that the pinMode() method sets for a particular pin?

- a) DIGITAL and ANALOG
- b) INPUT and OUTPUT
- c) TX and RX
- d) READ and WRITE

Answer: b

4. What are the voltage levels that can be detected if a pin is set to OUTPUT using the pinMode() method and the analogRead() method is used, in the Arduino Uno?

- a) 0 and 5V
- b) 0 to 5.1V
- c) 0 to 5V
- d) 0 to 10V

Answer: c

Explanation: The Arduino UNO has an operating voltage ranging from 0V to 5V. Hence the Serial monitor will record an output ranging from 0 to 1023. This is

done by mapping the value of the voltage to an integer set that has a range of 0 to 1023.

5. What will the code given below give as output if a 5V line is connected as input to pin 11?

```
1.int pin_1=11;
2.void setup() {
3.    pinMode(pin_1, INPUT);
4.    Serial.begin(9600);
5.}
6.void loop() {
7.    int reading=analogRead(pin_1);
8.    Serial.println(reading);
9.}
```

- a) 0
- b) 102
- c) Null
- d) 1023

Answer: d

Explanation: The voltage that is put across the pin 11 goes into the analog to digital convertor onboard the Arduino and then it is converted into an integer value that ranges from 0 to 1023. This is done by “mapping” the voltage value read, to a range of integers from 0 to 1023.

6. What is the output at the serial monitor of the code below if pin 11 is given the following signal?



```
1.int pin1=11;
2.void setup() {
3.    pinMode(pin1, INPUT);
4.    Serial.begin(9600);
5.}
```



```
6. void loop() {  
7.     int ip=analogRead(pin1);  
8.     if(ip>0) {  
9.         Serial.println("H");  
10.    }  
11.    } else {  
12.        Serial.println("O");  
13.    }  
14. }
```

a) OH0HO

b) OHHO

c) OHHH

d) HOHOO

[View Answer](#)

Answer: a

Explanation: The input signal given is of the form 01010. Therefore, according to the code, if ip is greater than 0 then 'H' is printed and if ip is less than 0 then 'O' is printed. So now we get the output as OH0HO. This is printed to the Serial Monitor with a baud rate of 9600.

7. How many errors are present in the code given below?

```
1. int pin1=12;  
2. void setup() {  
3.     pinMode(pin1, IN);  
4.     Serial.begin(9600);  
5. }  
6. void loop() {  
7.     int value=analogRead(pin1);  
8.     Serial.println(value+10);  
9. }
```

a) 1

b) 2

c) 3

d) 4

Answer: b

Explanation: There are 2 errors in the code given below. They are present in line 4. In line 4 the syntax of the “pinMode()” function is wrong since the ‘M’ is not a capital letter, and while setting pin1 as an input port, we have to write the second argument of the function as “INPUT” not “IN.”

8. What is the output of the program given below if a 0V is put across pin 11?

```
1.int pin=11;
2.void setup() {
3.    pinMode(pin, INPUT_PULLUP);
4.    Serial.begin(9600);
5.}
6.void loop() {
7.    int a=digitalRead(pin);
8.    Serial.println(a);
9.}
```

- a) 1
- b) 0
- c) 0.3
- d) 1.001

Answer: a

Explanation: The reading across the pin would be given as 1 (digital HIGH) since the pinMode is set to INPUT_PULLUP which basically pulls the reading up to the maximum when there is no voltage applied across the pin, but functions as a normal input pin for reading voltage levels when some amount of voltage is applied across it.

10.What is the purpose of the code given below?

```
11. int pin=11;
12. void setup() {
13.    pinMode(pin, INPUT);
14.    Serial.begin(9600);
15. }
16. void loop() {
17.    int a=1023-analogRead(pin);
18.    Serial.println(a);
19. }
```

- a) To demonstrate the working of the INPUT_PULLUP argument
- b) To emulate the working of the OUTPUT argument
- c) To emulate the analogRead method
- d) To reset all input to 0

[View Answer](#)

Answer: a

Explanation: The code given above inverts whatever voltage reading we get from the pin by subtracting the value that is acquired from the `analogRead()` method, from 1023, which corresponds to the maximum voltage that can be detected at the port.

2. Can the `setup()` function change the value of constant variables?

- a) Yes, it can change
- b) No, it cannot change
- c) Yes, it can change but only integer values
- d) Yes, it can change but only byte values

Answer: b

Explanation: In C/C++ Programming, once a constant is declared and initialized, its value cannot be further altered throughout the entire lifecycle of the program. Thus here the `setup()` function also follows through the same rule since the Arduino Programming Language is a working subset of the C++ Programming Language.

3. Is it syntactically correct to write the `loop()` function over the `setup()` function while writing an Arduino program?

- a) No, it is not syntactically correct
- b) Yes, it is syntactically correct but will result in the `loop()` method executing first
- c) Yes, it is syntactically correct and the `setup()` function will execute first
- d) It is syntactically correct but logically wrong

Answer: c

Explanation: The Arduino programming language is a subset of the C++ programming language, so therefore it supports a bottom-up approach and is an object-oriented programming language, making it irrelevant where the functions are declared.

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