QN=1	What is IoT?
a.	The Internet connecting everything
b.	The Internet controlling everything
c.	The Internet dectecting everything
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	1
LO:	LO1
MIX CHOICES:	yes

QN=2	Which of the following is application of IoT?
a.	Industrial robots
b.	Automatic production
c.	Smart homes, smart hospitals
d.	
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	2
LO:	LO1
MIX CHOICES:	Yes

QN=3	An IoT structure consists of
a.	3 components

b.	4 components
c.	5 components
d.	6 components
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	4
LO:	LO2
MIX CHOICES:	yes

QN=4	Name the components of an IoT structure.
a.	Devices (Things), Networking Infrastructure (Network and Cloud), Unit of Data Analysis and Processing (Services-creation and Solution Layers).
b.	Devices (Things), Connection Stations (Gateways), Networking Infrastructure (Network and Cloud), Input/Output Devices.
c.	Devices (Things), Connection Stations (Gateways), Networking Infrastructure (Network and Cloud), Unit of Data Analysis and Processing (Services-creation and Solution Layers), Input/Output Devices.
d.	**Devices** (Things), **Connection Stations** (Gateways), **Networking Infrastructure** (Network and Cloud), **Unit of Data Analysis and Processing** (Services-creation and Solution Layers).
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	3
LO:	LO2
MIX CHOICES:	yes

QN=5	What does IoT do in a smart home?
a.	Remotely monitor and control the temperature via a smartphone
b.	Control the temperature via infrared waves
c.	Control the sounds via Bluetooth
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	5
LO:	LO3
MIX CHOICES:	yes

QN=6	Is IoT applied in smart agriculture?
a.	Yes
b.	No
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	7 _Ebook 2
LO:	LO3
MIX CHOICES:	yes

QN=7	What is AWS IoT Device Defender?
a.	A fully managed service that helps you secure your fleet of IoT devices

b.	A service that manages IoT devices
c.	A service that manipulates IoT devices
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	7
LO:	LO4
MIX CHOICES:	yes

QN=8	Why do we have to secure IoT?
a.	To protect users, devices and enterprises
b.	To protect devices and the Internet
c.	To protect companies that are attacked by hackers
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	7
LO:	LO4
MIX CHOICES:	yes

QN=9	Electronic circuits are included in IoT systems.
a.	True
b.	False
c.	

d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	7
LO:	LO5
MIX CHOICES:	yes

QN=10	What is Arduino?
a.	An open source hardware and software platform
b.	A control circuit board
c.	A microprocessor
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	6- book 2
LO:	LO6
MIX CHOICES:	yes

QN=11	What language is used for **Arduino programming**?
a.	C/C++
b.	Python
c.	Java
d.	
e.	

f.	
ANSWER:	A
MARK:	1
UNIT:	9
LO:	LO6
MIX CHOICES:	yes

QN=12	Does Arduino have analog inputs?
a.	Yes
b.	No
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	9
LO:	LO6
MIX CHOICES:	yes

QN=13	Does Arduino have digital data output?
a.	Yes
b.	No
c.	
d.	
e.	
f.	
ANSWER:	A

MARK:	1
UNIT:	10
LO:	LO7
MIX CHOICES:	yes

QN=14	What are IoT sensors for?
a.	To collect data from the surrounding environment.
b.	To control devices from the surrounding environment.
c.	To adjust data from the surrounding environment.
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	12
LO:	LO7
MIX CHOICES:	yes

QN=15	Are IoT sensors and Network Interface Cards (NIC) the same?
a.	Yes
b.	No
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	13

LO:	LO8
MIX CHOICES:	yes

QN=16	Can engines be controlled remotely using IoT?
a.	Yes
b.	No
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	13
LO:	LO8
MIX CHOICES:	yes

QN=17	IoT can connect devices via Wifi network.
a.	True
b.	False
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	13
LO:	LO9
MIX CHOICES:	yes

QN=18	How do the program on a personal computer communicate with Arduino UNO?
a.	Via USB port
b.	Via HDMI port
c.	Via VGA port
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	15
LO:	LO9
MIX CHOICES:	yes

QN=19	What is Proteus software?
a.	Electronic circuit simulation software
b.	Circuit drawing software
c.	Civil circuit simulation software
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	16
LO:	LO10
MIX CHOICES:	yes

QN=20	Can Proteus software simulate programs running on Arduino board?

a.	Yes
b.	No
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	16
LO:	LO10
MIX CHOICES:	yes

QN=1	A program written in the Arduino IDE is called:
a.	a sketch
b.	a source code unit
c.	an IDE source
d.	an Arduino unit
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	2
LO:	LO2
MIX CHOICES:	Yes

QN=2	By default, Arduino IDE consists of 2 functions. What are they?
a.	setup() and build()
b.	loop() and build()

c.	setup() and loop()
d.	build() and loop()
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	3
LO:	LO2
MIX CHOICES:	yes

QN=3	Which leg of the LED is connected to GND?
a.	Long leg
b.	Short leg
c.	Either of the two legs
d.	There is no need to connect to GND
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	4
LO:	LO3
MIX CHOICES:	yes

QN=4	The Arduino board has one built-in LED on which digital pin?
a.	3
b.	9
c.	11
d.	13

e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	4
LO:	LO3
MIX CHOICES:	yes

QN=5	How many analog inputs are there on the UNO board?
a.	2
b.	4
c.	6
d.	8
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	6
LO:	LO4
MIX CHOICES:	yes

QN=6	An analog signal is one that can take on any number of values (instead of binary values).
a.	True
b.	False
c.	
d.	
e.	

f.	
ANSWER:	A
MARK:	1
UNIT:	6
LO:	LO4
MIX CHOICES:	yes

QN=7	A component has a resistance that changes with the light intensity that falls upon it. What is it called?
a.	Resistor
b.	Photoresistor
c.	Potentiometer
d.	Sensor
e.	
f.	B
ANSWER:	
MARK:	1
UNIT:	9
LO:	LO5
MIX CHOICES:	yes

QN=8	Which one is a temperature sensor?
a.	LM35
b.	Photoresistor
c.	RX330
d.	Breadboard
e.	
f.	

ANSWER:	A
MARK:	1
UNIT:	11
LO:	LO6
MIX CHOICES:	yes

QN=9	A humidity sensor can be considered a simple
a.	thermometer
b.	barometer
c.	hydrometer
d.	hygrometer
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	13
LO:	LO7
MIX CHOICES:	yes

QN=10	How many times does setup function run in an Arduino program?
a.	1
b.	2
c.	10
d.	Forever
e.	
f.	
ANSWER:	A
MARK:	1

UNIT:	3
LO:	LO2
MIX CHOICES:	yes

QN=11	How many times does loop function run in an Arduino program?
a.	1
b.	4
c.	5
d.	Forever
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	3
LO:	LO2
MIX CHOICES:	yes

QN=12	To open Serial Monitor, what keyboard shortcut do you use?
a.	Ctrl-Shift-L
b.	Ctrl-Shift-M
c.	Ctrl-M
d.	Shift-M
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	5
LO:	LO3

MIX CHOICES:	yes

QN=13	Which of the following is an actuator?
a.	Button
b.	Servo SG90
c.	Keypad
d.	IR remote control
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	12
LO:	LO9
MIX CHOICES:	yes

QN=14	Choose the odd one:
a.	Proteus
b.	Fritzing
c.	Photoshop
d.	
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	4
LO:	LO3
MIX CHOICES:	yes

QN=15	To control the brightness of an LED, we use the function:
a.	analogWrite(pin, value)
b.	digitalWrite(pin, HIGH)
c.	digitalWrite(pin, LOW)
d.	digitalWrite(pin, HIGH -> LOW)
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	14
LO:	LO7
MIX CHOICES:	yes

QN=16	The function delay(1000) delays:
a.	1000 s
b.	1000 ms
c.	10 s
d.	1 s
e.	
f.	
ANSWER:	BD
MARK:	1
UNIT:	3
LO:	LO3
MIX CHOICES:	yes

QN=17	Which one is not a sensor?
a.	LM35

b.	HC-SR04
c.	A buzzer
d.	A motion detector
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	15
LO:	LO10
MIX CHOICES:	yes

QN=18	Which is not an IoT application?
a.	Smart city
b.	Smart home
c.	Connected cars
d.	Web browsers
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	2
LO:	LO1
MIX CHOICES:	yes

QN=19	Which one is not a “smart city” yet?
a.	Barcelona
b.	Seoul
c.	Da Nang

d.	Singapore
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	4
LO:	LO3
MIX CHOICES:	yes

QN=20	What can be things in the Internet of things?
a.	People
b.	Animals
c.	Electronic devices
d.	Computers
e.	All of the physical objects embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data
f.	
ANSWER:	E
MARK:	1
UNIT:	2
LO:	LO1
MIX CHOICES:	yes

QN=1	What is IoT?
a.	A system of interrelated computing devices, mechanical and digital machines, objects, animals or people
b.	A system of physical things that are provided with unique identifiers (UIDs)

c.	A system of things that are able to transfer data over a network without requiring human-to-human or human-to-computer interaction
d.	All the other answers are correct
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	1
LO:	LO1
MIX CHOICES:	yes

QN=2	Which is not an IoT application?
a.	Smart city
b.	Smart home
c.	Connected cars
d.	Web browsers
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	1
LO:	LO1
MIX CHOICES:	yes

QN=3	Which one is not a “smart city” yet?
a.	Barcelona
b.	Seoul
c.	Da Nang

d.	Singapore
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	2
LO:	LO1
MIX CHOICES:	yes

QN=4	Internet of things is a kind of artificial intelligence.
a.	True
b.	False
c.	
d.	
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	1
LO:	LO1
MIX CHOICES:	yes

QN=5	The huge numbers of devices connected to the Internet of things have to communicate automatically, not via humans. What is this called?
a.	Bot to Bot (B2B)
b.	Skynet
c.	InterCloud

d.	Machine to Machine (M2M)
e.	Automation
f.	
ANSWER:	D
MARK:	1
UNIT:	2
LO:	LO3
MIX CHOICES:	yes

QN=6	What is the name of the first recognized IoT device?
a.	Smart Watch
b.	Radio
c.	Video Game
d.	ATM
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	2
LO:	LO2
MIX CHOICES:	yes

QN=7	Among people and machines, how many types of connection are there in IoT?
a.	1
b.	2
c.	3
d.	4
e.	

f.	
ANSWER:	C
MARK:	1
UNIT:	3
LO:	LO2
MIX CHOICES:	yes

QN=8	What can be things in the Internet of things?
a.	People
b.	Animals
c.	Electronic devices
d.	Computers
e.	All of the physical objects embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data
f.	
ANSWER:	E
MARK:	1
UNIT:	3
LO:	LO2
MIX CHOICES:	yes

QN=9	Which is not true about IPv4?
a.	An IPv4 address is made up of 32 binary bits
b.	It consists of four sets of numbers separated by periods
c.	One example of IPv4 is 172.18.**256**.9
d.	It is the fourth version of the Internet Protocol
e.	

f.	
ANSWER:	C
MARK:	1
UNIT:	4
LO:	LO3
MIX CHOICES:	yes

QN=10	Which element does IoT lack?
a.	Security
b.	People
c.	Things
d.	Process
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	4
LO:	LO3
MIX CHOICES:	yes

QN=11	Which is not an IoT protocols?
a.	MQTT
b.	XMPP
c.	CoAP
d.	HTTP
e.	
f.	
ANSWER:	D

MARK:	1
UNIT:	3
LO:	LO3
MIX CHOICES:	yes

QN=12	What is a firewall in computer networks?
a.	A system designed to prevent unauthorized access
b.	A web browser
c.	The physical boundary of network
d.	The Network Operating System
e.	A software to catch viruses
f.	
ANSWER:	A
MARK:	1
UNIT:	4
LO:	LO4
MIX CHOICES:	yes

QN=13	Standard port number for secure MQTT is:
a.	1883
b.	8000
c.	8883
d.	8888
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	4

LO:	LO4
MIX CHOICES:	yes

QN=14	What is Secure Shell (SSH)?
a.	A router
b.	A firewall
c.	The physical boundary of network
d.	A network protocol
e.	Python Shell
f.	
ANSWER:	C
MARK:	1
UNIT:	4
LO:	LO4
MIX CHOICES:	yes

QN=15	A program written in the Arduino IDE is called:
a.	sketch
b.	source code
c.	IDE source
d.	Arduino unit
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	4
LO:	LO5

MIX CHOICES:	yes

QN=16	It starts with a /* and continues until a */. What is it?
a.	A comment
b.	An instruction
c.	A sketch
d.	An outline
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	4
LO:	LO5
MIX CHOICES:	yes

QN=17	By default, Arduino IDE consists of 2 functions. What are they?
a.	setup() and build()
b.	loop() and build()
c.	setup() and loop()
d.	build() and loop()
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	4
LO:	LO5
MIX CHOICES:	yes

QN=18	In the Arduino IDE, which command is called once when the program starts?
a.	output()
b.	loop()
c.	input()
d.	setup()
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	4
LO:	LO5
MIX CHOICES:	yes

QN=19	Which leg of the LED is connected to GND?
a.	Long leg
b.	Short leg
c.	Either of the two
d.	There is no need to connect
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	3
LO:	LO6
MIX CHOICES:	no

QN=20	The Arduino board has one built-in LED on which digital pin?
a.	3

b.	13
c.	11
d.	9
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	5
LO:	LO6
MIX CHOICES:	yes

QN=21	How many digital pins are there on the UNO board?
a.	12
b.	14
c.	16
d.	20
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	6
LO:	LO6
MIX CHOICES:	yes

QN=22	A digital signal is one that can take on any number of values.
a.	True
b.	False
c.	

d.	
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	6
LO:	LO6
MIX CHOICES:	Yes

QN=23	How many analog inputs are there on the UNO board?
a.	2
b.	4
c.	6
d.	8
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	7
LO:	LO7
MIX CHOICES:	yes

QN=24	An analog signal is one that can take on any number of values (instead of binary values)
a.	True
b.	False
c.	
d.	

e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	8
LO:	LO7
MIX CHOICES:	Yes

QN=25	A component has a resistance that changes with the light intensity that falls upon it. What is it called?
a.	Resistor
b.	Photoresistor
c.	Potentiometer
d.	Sensor
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	6
LO:	LO8
MIX CHOICES:	yes

QN=26	Which one is a temperature sensor?
a.	LM35
b.	Photoresistor

c.	RX350
d.	Breadboard
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	6
LO:	LO8
MIX CHOICES:	yes

QN=27	A component has a resistance that changes with the light intensity that falls upon it. What is it called?
a.	Resistor
b.	Photoresistor
c.	Potentiometer
d.	Sensor
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	6
LO:	LO8
MIX CHOICES:	yes

QN=28	It is a sequence of instructions that is continually repeated until a certain condition is reached. What is it?
a.	A loop

b.	A program
c.	An algorithm
d.	A block
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	8
LO:	LO9
MIX CHOICES:	yes

QN=29	To open Serial Monitor, what keyboard shortcut do you use?
a.	Ctrl-Shift-L
b.	Ctrl-Shift-M
c.	Ctrl-M
d.	Shift-M
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	4
LO:	LO9
MIX CHOICES:	yes

QN=30	How many times setup function runs in Arduino IDE:
a.	1

b.	2
c.	10
d.	None of the above
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	4
LO:	LO9
MIX CHOICES:	yes

QN=31	How many times loop function runs in Arduino IDE:
a.	1
b.	4
c.	5
d.	forever
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	4
LO:	LO9
MIX CHOICES:	yes

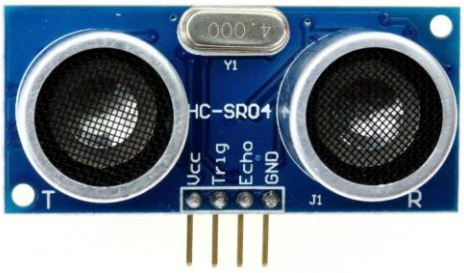
QN=32	What are sensors?
a.	Devices, modules, or subsystems that detect events or changes in its environment and send the information to other electronics
b.	Indispensable enablers of IoT

c.	Devices which converts physical parameters like temperature, motion etc… into the electrical signals
d.	All the other answers are correct
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	7
LO:	LO8
MIX CHOICES:	yes

QN=33	Which of the following is an actuator?
a.	Button
b.	Servo SG90
c.	Keypad
d.	IR remote control
e.	All the other answers are correct
f.	
ANSWER:	B
MARK:	1
UNIT:	7
LO:	LO8
MIX CHOICES:	yes

QN=34	Which of the following is the best for drawing IoT circuits?
a.	Photoshop
b.	Fritzing
c.	Paint 3D

d.	Corel
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	9
LO:	LO10
MIX CHOICES:	yes

QN=35	What is it? 
a.	An ultrasonic sensor
b.	A distance detector
c.	A sound sensor
d.	A speaker
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	9
LO:	LO10
MIX CHOICES:	yes

QN=36	Does Fritzing do simulation?

a.	Yes
b.	No
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	10
LO:	LO10
MIX CHOICES:	yes

QN=37	To control the brightness of an LED, we use the function:
a.	analogWrite(pin, value)
b.	digitalWrite(pin, HIGH);
c.	digitalWrite(pin, LOW);
d.	digitalWrite(pin, HIGH → LOW);
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	7
LO:	LO7
MIX CHOICES:	yes

QN=38	The function delay(1000) actually delays:
a.	1000s
b.	100s
c.	10s
d.	1s
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	5
LO:	LO5
MIX CHOICES:	yes

QN=39	Which programming language can be used for controlling of Arduino?
a.	C/C++
b.	Assembly Language
c.	Java
d.	Any Language
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	5
LO:	LO5
MIX CHOICES:	yes

QN=40	Which one is not a sensor?
a.	LM35

b.	A hygrometer
c.	HC-SR04
d.	A buzzer
e.	A motion detector
f.	
ANSWER:	D
MARK:	1
UNIT:	10
LO:	LO10
MIX CHOICES:	yes

QN=41	A potentiometer is a(n) .....
a.	sensor
b.	voltage
c.	resistor
d.	LED
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	10
LO:	LO10
MIX CHOICES:	yes

QN=42	What does IDE stand for?
a.	In Deep Environment
b.	Integrated Development Environment
c.	Internal Deep Escape

d.	Insight Download Environment
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	2
LO:	LO2
MIX CHOICES:	yes

QN=43	What is wrong with the following
	/*Turns on an LED on for one second, then off for one second, repeatedly. This example code is in the public domain.*/
	
	int led = 13;
	void setup() {
	pinMode(led, INPUT);
	}
	void loop() {
	digitalWrite(led, HIGH);
	delay(1000);
	digitalWrite(led, LOW);
	delay(1000);
	}

a.	All the code
b.	Void
c.	High and Low
d.	Low and High
e.	

f.	
ANSWER:	B
MARK:	1
UNIT:	4
LO:	LO5
MIX CHOICES:	yes

QN=44	Which function can be used to drive a motor at various speeds?
a.	analogWrite()
b.	digitalWrite()
c.	analogRead()
d.	digitalRead()
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	7
LO:	LO7
MIX CHOICES:	yes

QN=45	After a call to analogWrite(), the pin will generate a steady rectangular wave of the specified duty cycle until the next call to ..... on the same pin.
a.	analogWrite()
b.	digitalRead()
c.	digitalWrite()
d.	Either of the above
e.	
f.	

ANSWER:	D
MARK:	1
UNIT:	7
LO:	LO7
MIX CHOICES:	no

QN=46	How would you define the Internet of Things?
a.	The intelligent connection of people, process, data and things
b.	The day when computers take control of the world
c.	None of these
d.	Both of these
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	1
LO:	LO1
MIX CHOICES:	no

QN=47	The pinMode() function configures a pin as either an input or an output.
a.	True
b.	False
c.	
d.	
e.	
f.	
ANSWER:	A

MARK:	1
UNIT:	8
LO:	LO9
MIX CHOICES:	yes

QN=48	IoT is built on
a.	cloud computing
b.	networks of data-gathering sensors
c.	both of these
d.	none of these
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	2
LO:	LO2
MIX CHOICES:	yes

QN=49	Which among the given statements holds true about Big Data?
a.	Data set so large or complex that traditional processing applications are inadequate
b.	The most important data that comes into business
c.	Both of these
d.	None of these
e.	
f.	
ANSWER:	A
MARK:	1

UNIT:	4
LO:	LO4
MIX CHOICES:	yes

QN=50	What is the size of an IPv6 address?
a.	32 bits
b.	64 bits
c.	128 bits
d.	256 bits
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	3
LO:	LO3
MIX CHOICES:	yes

QN=1	**Which is not an IoT protocols?**
a.	MQTT
b.	XMPP
c.	CoAP
d.	HTTP
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	2

LO:	LO3
MIX CHOICES:	Yes

QN=2	**A humidity sensor can be considered a simple**
a.	thermometer
b.	barometer
c.	hydrometer
d.	hygrometer
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	4
LO:	LO5
MIX CHOICES:	Yes

QN=3	**The function delay(1000) actually delays:**
a.	1000s
b.	100s
c.	10s
d.	1s
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	3
LO:	LO9
MIX CHOICES:	yes

QN=4	**To control the brightness of an LED, we use the function:**
a.	analogWrite(pin, value)
b.	digitalWrite(pin, HIGH);
c.	digitalWrite(pin, LOW);
d.	digitalWrite(pin, HIGH -> LOW);
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	5
LO:	LO7
MIX CHOICES:	yes

QN=5	**Which of the following is an actuator?**
a.	Button
b.	Servo SG90
c.	Keypad
d.	IR remote control
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	8
LO:	LO5
MIX CHOICES:	yes

QN=6	**How many times does loop function run in Arduino IDE?**

a.	1
b.	3
c.	5
d.	Forever
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	3
LO:	LO9
MIX CHOICES:	yes

QN=7	**An analog signal is one that can take on any number of values (instead of binary values).**
a.	True
b.	False
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	4
LO:	LO7
MIX CHOICES:	yes

QN=8	**A component has a resistance that changes with the light intensity that falls upon it. What is it called?**

a.	Resistor
b.	Photoresistor
c.	Potentiometer
d.	Sensor
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	7
LO:	LO8
MIX CHOICES:	yes

QN=9	**Which leg of the LED is connected to GND?**
a.	Long leg
b.	Short leg
c.	Either of the two legs
d.	There is no need to connect to GND
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	2
LO:	LO6
MIX CHOICES:	yes

QN=10	**The Arduino board has one built-in LED on which digital pin?**
a.	3
b.	11

c.	13
d.	9
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	3
LO:	LO6
MIX CHOICES:	yes

QN=11	**By default, Arduino IDE consists of 2 functions. What are they?**
a.	setup() and build()
b.	loop() and build()
c.	setup() and loop()
d.	build() and loop()
e.	
f.	
ANSWER:	C
MARK:	1
UNIT:	2
LO:	LO12
MIX CHOICES:	yes

QN=12	**In the Arduino IDE, which command is called once when the program starts?**
a.	output()
b.	loop()
c.	input()
d.	setup()

e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	3
LO:	LO9
MIX CHOICES:	yes

QN=13	**How many digital pins are there on the UNO board?**
a.	12
b.	14
c.	16
d.	20
e.	
f.	
ANSWER:	B
MARK:	1
UNIT:	4
LO:	LO11
MIX CHOICES:	yes

QN=14	**Which of the following is the best for drawing IoT circuits?**
a.	Photoshop
b.	Fritzing
c.	Paint 3D
d.	Corel
e.	
f.	

ANSWER:	B
MARK:	1
UNIT:	8
LO:	LO10
MIX CHOICES:	yes

QN=15	**Does Fritzing do simulation?**
a.	Yes
b.	No
c.	
d.	
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	6
LO:	LO10
MIX CHOICES:	yes

QN=16	**What can be things in the Internet of things?**
a.	People
b.	Animals
c.	Electronic devices
d.	Computers
e.	All of the physical objects embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data
f.	
ANSWER:	E

MARK:	1
UNIT:	2
LO:	LO2
MIX CHOICES:	yes

QN=17	**Which element does IoT likely lack?**
a.	Security
b.	People
c.	Things
d.	Processes
e.	
f.	
ANSWER:	A
MARK:	1
UNIT:	4
LO:	LO4
MIX CHOICES:	yes

QN=18	**What is IoT?**
a.	A system of interrelated computing devices, mechanical and digital machines, objects, animals or people
b.	A system of physical things that are provided with unique identifiers (UIDs)
c.	A system of things that are able to transfer data over a network without requiring human-to-human or human-to-computer interaction
d.	A LAN
e.	
f.	
ANSWER:	ABC

MARK:	1
UNIT:	1
LO:	LO1
MIX CHOICES:	yes

QN=19	**Which is not an IoT application?**
a.	Smart city
b.	Smart home
c.	Connected cars
d.	Web browsers
e.	
f.	
ANSWER:	D
MARK:	1
UNIT:	1
LO:	LO1
MIX CHOICES:	yes

QN=20	**An interrupt is a signal that tells the processor to immediately stop what it is doing and handle some high priority processing. That high priority processing is called**
a.	an interrupt handler
b.	a trigger
c.	a terminator
d.	an interruption
e.	
f.	
ANSWER:	A

MARK:	1
UNIT:	14
LO:	LO13
MIX CHOICES:	yes

Secret-key encryption is also known as

A.Asymmetric encryption
B.Symmetric encryption
C.Secret-encryption
D.Private encryption _____ D.Private encryption

When you have a potential IoT idea you want to develop properly, what must you first define?
A.Its Unique Value Proposition
B.Problem it sets out to solve
C.Route to market
D.How it will work _____ B.Problem it sets out to solve

Is it useful completing a business plan for a personal or in-house IoT product?
A.Yes
B.No _____ A.Yes

What is Fog computing?
A.It is a type of computing that enhances P2P applications.
B.It is a type of computing that sends controller data to a sensor.
C.It is a type of computing that disperses servers and services globally in distributed data centers.
D.It is a type of computing where services are hosted where they are used, such as at the network edge or with end devices. _____ D.It is a type of computing where services are hosted where they are used, such as at the network edge or with end devices.

What is an example of cloud computing?
A.A continuous interaction between people, processes, data, and things.
B.A service that offers on-demand access to shared resources.
C.A network infrastructure that spans a large geographic area.
D.An architectural style of the World Wide Web. _____ B. A service that offers on-demand access to shared resources.

What is used to uniquely identify devices connected to the Internet?
A.gateway address
B.IP address
C.device name

D.URL _____ B.IP address

Which word or phrase most accurately sums up the main benefit of IoT technology?
A.Accuracy
B.Efficiencies
C.Energy use
D.Response time _____ D.Response time

How can IoT help combat climate change?
A.Smart devices working to reduce energy use.
B.Prevention of methane release from cows.
C.Free internet in cities to help people operate in the city more easily.
D.Predictive maintenance of wind turbines, preventing burn out. _____ A.Smart devices working to reduce energy use.

Which of the following disruptions - caused by vehicles becoming fully autonomous - were the people surveyed most worried about?
A.Reduced private ownership of cars.
B.Less traffic lights on roads.
C.Reduced number of driving jobs.
D.Less space needed for parking.
E.Reduced vehicle emissions. _____ C.Reduced number of driving jobs.

Smart cities use the Internet of Things to improve the quality of citizens' lives. True or False?
A.True
B.False _____ A.True

Which of the following is one of the ways IoT monitoring of dairy cows improves dairy farming?
A.The system tells you when cows are ready for milking, saving time spent on monitoring the herd.
B.The system can sound alarms when cows roam into neighbouring paddocks.
C.The system notices the cows that are unwell, so they are treated quicker, which speeds up recovery time.
D.The system results in more milk from the cows' udders for each milking.
_____ C.The system notices the cows that are unwell, so they are treated quicker, which speeds up recovery time.

What are the descriptors for Big Data? (as coined by IBM)
A.Speed, True, Diversity, Amount
B.Vast, Velocity, Variance, Verified
C.Volume, Velocity, Variety, Veracity _____ C.Volume, Velocity, Variety, Veracity

Which of the following functions does NOT apply to a typical data centre's services?

A.Data storage
B.Data management
C.Data analysis
D.Data security
E.Data generation _____ E.Data generation

Which terminology deals with the excitation or stimulus applied to a system from an external source, for the generation of an output?
A.Input signal
B.Output signal
C.Error signal
D.Analogue signal
E.Feedback signal _____ A.Input signal

Closed-loop Systems use feedback where a portion of the output signal is fed back to the input to reduce errors and improve stability.
A.True
B.False _____ A.True

Which challenge comes under securing the information?
A.Signaling
B.Security
C.Presence detection
D.Power consumption _____ B.Security

Which challenge comes under IoT devices, reliable bidirectional signaling.
A.Signaling
B.Security
C.Presence detection
D.Power consumption _____ A.Signaling (*)
C.Presence detection

Which challenge comes when we use many devices on the same network?
A.Signaling
B.Security
C.Presence detection
D.Power consumption _____ D.Power consumption

Which of the following issues are considered in IoT?
A.Security Issue
B.Reliablity Issue
C.Standard Issue
D.All issues _____ D.All issues

IoT is a paradigm that involves ubiquitous presence in the environment.
A.True
B.False _____ A.True

IoT stands for _____
A.Industrial Internet of Things
B.Internet Internet of Things
C.Intelligence Internet of Things
D.Internal Internet of Things _____ A.Industrial Internet of Things

Which possibility ensures load balancing and peak levelling of energy consumption?
A.Transportation and logistics
B.Energy and utilities
C.Automotive
D.Connected supply chain _____ C.Automotive

Which possibility connects the production line to suppliers?
A.Transportation and logistics
B.Energy and utilities
C.Automotive
D.Connected supply chain _____ D.Connected supply chain

Which possibility is highest contributor to cost overhead for manufacturing facilities?
A.Transportation and logistics
B.Energy and utilities
C.Plant control flow operation
D.Energy management and resource optimization _____ D.Energy management and resource optimization

_____ will enable the humans to access, control and manage the operation.
A.IoT
B.Bigdata
C.Network
D.Communication _____ A.IoT

In _____ the embedded devices and objects working under IoT are resource constrained.
A.Health
B.Industry
C.Home
D.Information system _____ D.Information system

What type of networks is interacting under IoT?
A.Heterogeneous only
B.Homogeneous Only

C.Both hetero and homogeneous
D.Neither hetero nor Homo _____ A.Heterogeneous only

Managing of resources can be done by implementing _____
A.Protocols
B.Algorithms
C.Networks
D.Protocols and algorithms _____ D.Protocols and algorithms

Resource management will elaborate the key aspects of _____
A.Industrial managements
B.Energy management
C.Network management
D.Information management _____ C.Network management

Which category finds an increase in applications targeting health and fitness?
A.Personal IoT
B.Group IoT
C.Community IoT
D.Industrial IoT _____ A.Personal IoT

Which category is used in the context of connected cars?
A.Personal IoT
B.Group IoT
C.Community IoT
D.Industrial IoT _____ B.Group IoT

Which category could be used by citizens to contribute to a smart city?
A.Personal IoT
B.Group IoT
C.Community IoT
D.Industrial IoT _____ C.Community IoT

Which category is used for business to consumer process?
A.Personal IoT
B.Group IoT
C.Community IoT
D.Industrial IoT _____ D.Industrial IoT

Voice recognition software and virtual assistant programs offer for _____ and _____
A.Communication
B.Communication and Entertainment
C.Entertainment
D.Communication and Software _____ B.Communication and Entertainment

_____ is particularly appealing when the human's hands or eye are otherwise occupied
A.Voice recognition
B.Sound recognition
C.Amplitude recognition
D.Frequency recognition _____ A.Voice recognition

Voice telephony is an efficient means of _____ with machines that can listen.
A.Mono-directional voice communication
B.Bi-directional voice communication
C.Voice recognition
D.Both bi directional and mono directional _____ B.Bi-directional voice communication

Without _____ IoT devices can easily lead to catastrophe.
A.Software
B.Management system
C.Cloud
D.Devices _____ B.Management system

What IoT collects?
A.Human generated data
B.Sensor data
C.Machine generated data
D.Device data _____ C.Machine generated data

Which requires data stream management?
A.Bigdata
B.IoT
C.Bigdata & IoT
D.Device data _____ B.IoT

_____ Describe IoT architecture

A.Application, Decision Support Tools, Big Data Stores, Network and Telecommunication Equipment, Connected devices
B.None of them
C.Big Data, Monitors, Tele-communication, Remote control
D.Application, Protocols, Electricity, Hardware, Connected devices _____
A.Application, Decision Support Tools, Big Data Stores, Network and Telecommunication Equipment, Connected devices

Internet of Things represents only software integration or only internet not Hardware integration...

A.True
B.False _____ B.False

Big Data is not a part of IoT.

A.True
B.False _____ B.False

Smart City, and Smart Energy Management Systems are the part of Internet of Things.

A.True
B.False _____ A.True

What are the three dominant technological forces which are accelerating the Internet of Things?

A.Mobile, Cloud, Engagement
B.Data, Storage, Interaction
C.Data, Cloud, Engagement
D.Mobile, Storage, Interaction _____ C.Data, Cloud, Engagement

The Internet of Things will result in new innovative applications and services led by today's technology, and this will be in the mind of the beholder on how to leverage this?

A.True
B.False _____ A.True

The proliferation of low-cost smaller mobile devices is an example of a _____ for the Internet of Things?

A.All of these
B.Challenge
C.Implication
D.Driver _____ D.Driver

Data sharing is a _____ topic in today's society?

A.Prominent
B.Hindering
C.Daunting
D.Intriguing _____ A.Prominent

A system must include _____.

A.an input, an output and a process.
B.something to do with a form of transport.
C.a microprocessor.
D.fuel, water and electricity. _____ A.an input, an output and a process.

The IoT operates at _____ scale
A.Machine
B.Human
C.Device
D.Sensor _____ A.Machine

Fritzing is open source, free software.
A.True
B.False _____ A.True

Which of these is NOT electronic equipment you can use for IoT prototyping?
A.Arduino microcontroller
B.Raspberry Pi microprocessor
C.Blackberry router
D.LED _____ C.Blackberry router

What does the 'things' in Internet of Things refer to?
A.Smart phones and tablets
B.Machines and vehicles that operate themselves
C.A physical object with embedded electronics _____ C.A physical object with embedded electronics

The IoT increases the potential for machines to make smart decisions based on collected data, and to act on them, leaving people (apart from the original programmers and those setting the parameters) out of the loop. This is called M2M. Select an example of M2M from the descriptions below.
A.A sensor on a milking cow indicates that she is moving in a way that suggests she in on heat and will be receptive to insemination. She is placed on a watch list and the herd manager chooses to draught her out, after milking, for insemination.
B.An autonomous ambulance on an emergency call approaches an intersection and communicates with the signals to change the lights from red to green, to allow smooth passage through the intersection.
C.Sensors on a bridge detect strain in bridge joints. Areas of concern are flagged with the maintenance team who can respond to specific problems, rather than carrying out lengthy inspections. _____ B.An autonomous ambulance on an emergency call approaches an intersection and communicates with the signals to change the lights from red to green, to allow smooth passage through the intersection.

What protocol is good for communication of IoT devices with restricted power and low data rates over a range of a few kilometres ?

A.Bluetooth
B.Zigbee
C.LoRaWAN
D.4G
E.WiFi _____ C.LoRaWAN

What is the main advantage of IPv6, and why does it suit IoT?
A.IPv6 provides many more IP addresses, which increases the potential number of hosts and amount of data.
B.IPv6 is more up to date protocol with leaner mechanisms which suit modern microprocessors.
C.IPv6 is faster and can carry more data. _____ A.IPv6 provides many more IP addresses, which increases the potential number of hosts and amount of data.

Which of these media is currently NOT used in communicating data?
A.Wireless / electromagnetic waves
B.Hydrogen cables / electron ionisation
C.Fibre optics / pulses of light
D.Copper cables / electrical signals _____ B.Hydrogen cables / electron ionisation

Communication in a network is carried via a _____ ?
A.Sensor
B.Router
C.Medium
D.Device
E.Controller _____ C.Medium

When you upload a photo from your camera to a social media site, what kind of path is the information likely to travel?
A.End device -> Modem -> Controller -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server
B.End device -> Controller -> Modem -> Your ISP -> Networks and Routers -> social media site's server -> social media site's ISP
C.End device -> Controller -> Modem -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server
D.Controller -> Modem -> Your ISP -> Networks and Routers -> social media site's ISP -> social media site's server -> End device _____ C.End device -> Controller -> Modem -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server

Why will IoT put a strain on internet infrastructure?
A.The unprecedented amount of data
B.The variety of IoT protocols
C.The large number of unsecured devices connecting to the internet _____
A.The unprecedented amount of data

Sometimes many devices share the same set of wires. This connection mode is referred to as a _____?
A.Train
B.Bus
C.Multi-point connection _____ B.Bus

In a communications network, peers can send messages to:
A.Peers in the same layer only
B.Peers in any layer
C.Peers in the layers above and below only _____ A.Peers in the same layer only

What is another way of thinking of the DTE?
A.As a Modem
B.As a Computer
C.As a Router _____ B.As a Computer

In telecommunications, RS-232 is used for _____communication transmission of data.
A.serial
B.parallel _____ A.serial

Bluetooth uses low power radio waves in the frequency range of ...?
A.2.4 - 2.485Hz
B.2.4 - 2.485GHz
C.2.4 - 2.485MHz _____ B.2.4 - 2.485GHz

Bluetooth has three classes, namely:
A.Industrial, Scientific, Medical
B.Class 1, Class 2 and Class 3 (100m, 10m and 1m range)
C.I, M and R (Industrial, Mobile and Rarely used) _____ B.Class 1, Class 2 and Class 3 (100m, 10m and 1m range)

Bluetooth is named after:
A.The scientist who invented it, who had blue teeth
B.The company that invented it, Ericsson's founder Harald Bluetooth
C.Danish King, Harald Gormsson who promoted communication between Denmark and Norway _____ C.Danish King, Harald Gormsson who promoted communication between Denmark and Norway

The huge numbers of devices connected to the Internet of things have to communicate automatically, not via humans. What is this called?
A.Bot to Bot (B2B)
B.Machine to Machine (M2M)
C.InterCloud

D.Skynet _____ B.Machine to Machine (M2M)

Which characteristics involve the facility the thing to respond in an intelligent way to a particular situation?
A.Intelligence
B.Connectivity
C.Dynamic Nature
D.Enormous Scale _____ A.Intelligence

_____ empowers IoT by bringing together everyday objects.
A.Intelligence
B.Connectivity
C.Dynamic Nature
D.Enormous Scale _____ B.Connectivity

The collection of data is achieved with _____ changes.
A.Intelligence
B.Connectivity
C.Dynamic Nature
D.Enormous Scale _____ C.Dynamic Nature

The number of devices that need to be managed and that communicate with each other will be much larger.
A.Intelligence
B.Connectivity
C.Dynamic Nature
D.Enormous Scale _____ D.Enormous Scale

_____ a cellular network is expensive, especially with many IoT devices.
A.Signaling
B.Security
C.Bandwidth
D.Power consumption _____ C.Bandwidth

Communication between _____ and _____ is encrypted for security.
A.Cloud and device
B.End user and data center
C.Network and device
D.Cloud and Network _____ B.End user and data center

The embedded devices will form _____ network
A.ATM
B.Ethernet
C.FDDI

D.Ad-hoc _____ D.Ad-hoc

_____ are used to overcome the challenges of managing the resources of the IoT.
A.Clustering
B.Software agents
C.Synchronization techniques
D.Cluster, Software agent, and Synchronization techniques _____ D.Cluster, Software agent, and Synchronization techniques

BAN stands for _____
A.Body Area Network
B.Brain Area Network
C.Body Android Network
D.Brain Android Network _____ A.Body Area Network

NFC stands for _____
A.Near Fast Communication
B.Near Field Communication
C.Near Field Customer
D.Near Field Connection _____ B.Near Field Communication

Phones act as actuators too.
A.True
B.False _____ A.True

WiFi uses how much frequency?
A.2.2GHz
B.3GHz
C.3.5GHz
D.2.4GHz _____ D.2.4GHz

Bluetooth will transmit the data over the frequency band _____
A.2.4 to 2.7 GHz
B.2.4 to 3 GHz
C.2.4 to 2.485 GHz
D.2.4 to 2.6 GHz _____ C.2.4 to 2.485 GHz

Bluetooth operates at short distances.
A.True
B.False _____ A.True

Bluetooth will drain battery life.
A.True

B.False _____ A.True

What data security concerns do IoT devices pose?
A.The device being hijacked to harm another device or system
B.Because they are small and low powered, they can't carry much software including security software leaving them open to data theft or disruption
C.The devices being small and embedded into objects makes them easily vandalised or stolen
_____ B.Because they are small and low powered, they can't carry much software including security software leaving them open to data theft or disruption

How does the addition of data due to IoT create privacy issues?
A.Systems struggle to deal with the large amount of data so data gets 'stuck outside security' waiting to be dealt with
B.Multiple data sets each stripped of identification initially can be combined as a whole and reveal identity
C.More data going through security measures inevitably means more security breakdowns and data leakage
D.IoT devices generally connect wirelessly creating additional harder to secure channels for data hijack _____ B.Multiple data sets each stripped of identification initially can be combined as a whole and reveal identity

Which of the following is NOT a security measure?

A.Encryption
B.Password
C.Firewall
D.Firmware _____ D.Firmware

How does fog computing reduce security risks?

A.It acts on IoT data closer to the source
B.It creates unclear connections that are difficult to intercept
C.It reduces the need for remote management
D.It scrambles electronic signals and encrypts all data _____ A.It acts on IoT data closer to the source

The resistance of a heater coil is 10 Ohms and the input voltage is 120V. What is the current?

A.12 amps
B.1,200 amps
C.0.083 amps _____ A.12 amps

If you need to increase the current through a resistor in a circuit, what would you do?

A.Decrease the voltage applied to the resistor.

B.Increase the voltage applied to the resistor.
C.Increase the room temperature.
D.Increase the value of the resistor.
E.All of the above. _____ B.Increase the voltage applied to the resistor.

A DC motor requires a current of 10 Amperes to operate at full speed. The battery attached supplies 12 Volts. What resistance is required in the circuit to provide exactly 10 A to the motor?

A.12 ohms
B.120 ohms
C.1.2 ohms _____ B.120 ohms

When current flows through a resistor, the power involved produces heat. What measures can be taken to reduce the generation of heat inside a computer?

A.Reduce the voltage from the power supply.
B.Increase the total resistive value in the circuit.
C.Increase the physical size of resistors.
D.Use capacitors on the output of the power supply.
E.All of the above. _____ A.Reduce the voltage from the power supply.

The combination of conditioning plus the element being controlled by the computer is called a _____ ?

A.DAC
B.Instrumentation amplifier
C.Motor
D.Actuator _____ D.Actuator

The combination of a transducer with its signal conditioner is called a _____ ?

A.Instrumentation Amplifier
B.Sensor
C.Thermistor
D.ADC _____ B.Sensor

What is the microcontroller used in Arduino UNO?

A.ATmega328p
B.ATmega2560
C.ATmega32114
D.AT91SAM3x8E _____ A.ATmega328p

What does p refer to in ATmega328p?

A.Production
B.Pico-Power
C.Power-Pico
D.Programmable on chip _____ B.Pico-Power

Arduino shields are also called as_____

A.Extra peripherals
B.Add on modules
C.Connectivity modules
D.Another Arduinos _____ B.Add on modules

Which is the software or a programming language used for controlling of Arduino?

A.Assembly Language
B.C Languages
C.JAVA
D.Any Language _____ D.Any Language

A program written with the IDE for Arduino is called _____

A.IDE source
B.Sketch
C.Cryptography
D.Source code _____ B.Sketch

Arduino IDE consists of 2 functions. What are they?

A.Build() and loop()
B.Setup() and build()
C.Setup() and loop()
D.Loop() and build() and setup() _____ C.Setup() and loop()

How many digital pins are there in the UNO board?

A.14
B.12
C.16
D.20 _____ A.14

_____ board allows sewn into clothing.

A.UNO
B.RedBoard

C.LilyPad
D.Mega _____ C.LilyPad

There is efficiency gains from _____ all sorts of equipment.

A.Implementation
B.Analogous
C.Evolution
D.Digitization _____ D.Digitization

A provider which produces 99 percent uptime _____

A.Security issues
B.Network Issues
C.Programming issue
D.Memory issue _____ B.Network Issues

With physical security, the stakes are incredibly _____

A.Very high
B.Low
C.Very low
D.High _____ D.High

Which digit does the colour yellow denote on a resistor colour band?

A.2
B.4
C.7
D.3 _____ B.4

A 47 Kohm resistor would have which colours on its first three bands?

A.red, white, blue
B.yellow, violet, white
C.orange, yellow, violet
D.yellow, violet, orange _____ D.yellow, violet, orange

Which digit does the colour orange denote on a resistor colour band?

A.9
B.1
C.6
D.3 _____ D.3

A resistor's first three colour bands are red, yellow and black. What is its value?

A.240 ohms
B.24 ohms
C.32 ohms
D.420000 ohms _____ B.24 ohms

Which digit is represented by a blue band on a resistor?

A.4
B.8
C.6
D.9 _____ C.6

Which digit is represented by a black band on a resistor?

A.100
B.1
C.1000
D.0 _____ D.0

A resistor's first three colour bands are brown, green and red. What is its value?

A.1500 ohms
B.250 ohms
C.2000 ohms
D.510 ohms _____ A.1500 ohms

Which colour represents the digit 6 in the resistor colour code?

A.red
B.blue
C.pink
D.green _____ B.blue

Which of these colours is NOT used in the resistor value colour code?

A.black
B.turquoise
C.white
D.violet _____ B.turquoise

A micro-controller is...

A.small CPU made of transistors and conductors of heat and sound sensor
B.portable circuits capable of making other circuits
C.small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals
D.small chip made of silver _____ A.small CPU made of transistors and conductors of heat and sound sensor

What does GPIO stand for?

A.General Purpose Inner Outer Propeller
B.General Purpose Interested Old People
C.General Purpose Input Output Pins
D.General Purpose Input Output Processor _____ C.General Purpose Input Output Pins

Before your program "code" can be sent to the board, it needs to be converted into instructions that the board understands. This process is called...

A.Stop
B.Create Sketch
C.Compile
D.Serial Monitor _____ C.Compile

This shows you what the IDE is currently doing and is also where error messages display if you make a mistake in typing your program. (often called a syntax error)

A.Sketch Editor
B.Text Console
C.Line Number
D.Serial Monitor _____ B.Text Console

This shows you what line number your cursor is on. It is useful since the compiler gives error messages with a line number.

A.Sketch Editor
B.Text Console
C.Line Number
D.Serial Monitor _____ C.Line Number

A function is a series of programming statements that can be called by name. Which command is called once when the program starts:

A.loop()
B.(output)
C.setup()
D.(input) _____ C.setup()

A function is a series of programming statements that can be called by name. Which command is called repetitively over and over again as long as the Arduino has power.

A.loop()
B.(output)
C.setup()
D.(input) _____ A.loop()

A function is a series of programming statements that can be called by name. Which command delays the LED by a number of milliseconds is.

A.loop()
B.delay()
C.setup()
D.stop() _____ B.delay()

What is this line of code: // the loop function runs over and over again forever

A.A statement
B.A single line comment
C.A function definition
D.A bowl of cereal _____ B.A single line comment

What is this line of code: void loop() {

A.A statement
B.A single line comment
C.Part of a function definition
D.A banana _____ C.Part of a function definition

Which pin has a built-in LED?

A.Pin 13
B.Pin 10
C.Pin 8
D.Pin 7 _____ A.Pin 13

What are two two main types of Arduino pins?

A.Digital and analog.
B.Digital and modulation.
C.Pulse and analog. _____ A.Digital and analog.

If you make a voltage divider circuit with R1 = 10K and R2 = 10K, and your Vin is 12V, what will be your Vout?

A.12V
B.10V
C.6V
D.5V _____ C.6V

How many bits are there in a byte?

A.256
B.8
C.16
D.10 _____ B.8

On a breadboard, where do you put a DIP package?

A.In the middle of the board
B.On the bottom side of the board
C.In the power rails
D.With the potato chips _____ A.In the middle of the board

What is the nominal voltage of 6 AAA batteries connected in parallel?

A.6V
B.9V
C.12V
D.1.5V _____ D.1.5V

This is an unsigned data type that occupies 1 byte of memory. Same as the byte datatype. It encodes numbers from 0 to 255.

A.highByte()
B.unsigned char
C.unsigned long
D.volatile _____ B.unsigned char

This is used to include outside libraries in your sketch. This gives the programmer access to a large group of standard C libraries (groups of pre-made functions), and also libraries written especially for Arduino.

A.#include
B.break
C.void
D.#define _____ A.#include

This clears (writes a 0 to) a bit of a numeric variable.

A.bitClear
B.sizeof()
C.pinMode
D.#include _____ A.bitClear

The void keyword is used only in function declarations. It indicates that the function is expected to return no information to the function from which it was called.

A.HIGH
B.void
C.pin
D.LOW _____ B.void

Sensors play a big part in the Internet of Things, collecting data from the physical world. There is a long and growing list of sensor types, but some of the more common ones are found in smart phones. Which sensor in your phone collects information on your physical activity for health apps?
A.Gyroscope
B.Magnetometer
C.Proximity sensor
D.Accelerometer _____ D.Accelerometer

In an industrial fan maintenance system, what physical change does Ian Howard say a sensor might detect, measure and transmit data on?
A.Vibration
B.Blade speed
C.Power
D.Wind direction _____ A.Vibration

When the gate system at the dairy closes one gate and opens another to direct a cow into a particular area, what is (or what are) the actuators in play?
A.RF antennae detecting ID of cow
B.Light sensors detecting cow in gate
C.Pneumatic arms on gate mechanism
D.Movement sensor in cow's pendant _____ C.Pneumatic arms on gate mechanism

All of the parts of a complete IoT process need programming. But where in the following IoT process is programming needed for the system to be Internet of Things?
A.Soil sensor to microcontroller to the Cloud to microcontroller to fertilising mechanism
B.Soil sensor and Cloud and fertilising mechanism
C.Microcontroller and Cloud
D.Soil sensor and Microcontroller

E.Soil sensor and fertilising mechanism _____ C.Microcontroller and Cloud

Which of these sentences could be a line of programming code?
A.If temperature is more than 30 degrees C, run fan, else, run heater
B.When it gets too hot, turn the fan on otherwise keep heating the room
C.Run heater until temperature reaches 30 degrees C then cool it down _____
A.If temperature is more than 30 degrees C, run fan, else, run heater

In the reticulation (water irrigation) system, what type of device is the outdoor camera?
A.Sensor
B.Actuator
C.Control
D.none of the above _____ A.Sensor

What sort of actuator would you use to control the movement of a conveyor belt?
A.A linear actuator
B.An AC motor
C.A thermocouple
D.A water pump
E.A rubber belt _____ B.An AC motor

Which of the following IS NOT criteria to help select a wired communication protocol?
A.Speed
B.Number of wires per connection
C.Ability to transmit and receive information at the same time
D.Number of devices that need connecting
E.Distance to the nearest power point
F.Maximum distance between master and slaves _____ E.Distance to the nearest power point(*)
F.Maximum distance between master and slaves

If we intend to include a servo motor as an actuator, what feature should we include when selecting a microcontroller?
A.Analogue to Digital converter
B.Digital to Analogue converter
C.GPIO pins
D.Pulse Width Modulation pin
E.I2C pins _____ C.GPIO pins
D.Pulse Width Modulation pin(*)

In an IoT smart home system, sensors are connected to the home power outlet and are required to process some part of the collected data. What would be the best option to connect sensors to each other, as well as a central location for Internet connection, where high data rate is required?
A.Bluetooth

B.6LowPAN
C.WiFi
D.LoRa _____ C.WiFi

From the list below, which is the LPWAN technology?
A.LoRa
B.WiFi
C.LTE
D.6LowPAN _____ A.LoRa

Fill in the blank: System _____ can be a major problem, especially in badly designed closed-loop systems, as they may try to over-correct any errors which could cause the system to lose control and oscillate.
A.stability
B.scalability
C.security
D.useability
E.feedback _____ A.stability

One advantage of a closed loop feedback system is:
A.Simplicity of design
B.Ability to react to disturbances in the system
C.It is less stable than an open loop system
D.Depends on calibration for accuracy
E.All of the above _____ B.Ability to react to disturbances in the system

Fill in the blank. If we want to measure the temperature of a solution in a chemical process to within 0.1 degree Celsius, over a range of 100 degrees, our development board would need a _____ converter to meet that requirement for accuracy.
A.8 bit
B.10 bit
C.16 bit
D.32 bit _____ B.10 bit

_____ provide the means to create capability that reflects true awareness of the physical world and people.
A.Sensors
B.Heterogeneity
C.Security
D.Connectivity _____ A.Sensors

_____ in IoT as one of the key characteristics, devices have different hardware platforms and networks.
A.Sensors
B.Heterogeneity

C.Security
D.Connectivity _____ B.Heterogeneity

IoT devices are naturally vulnerable to _____ threats.
A.Sensors
B.Heterogeneity
C.Security
D.Connectivity _____ C.Security

What is the popular method of organizing wireless network topologies?
A.Software
B.Synchronization
C.Network
D.Cluster _____ D.Cluster

What is the role of communication protocol in IoT?
A.Smart cities
B.Cyber physical system
C.Mac layer issue
D.Managing energy _____ C.Mac layer issue

Which of the following is the future application of IoT?
A.Role of green IoT system
B.QoS in communication
C.Secure communication
D.Multimedia communication _____ A.Role of green IoT system

The object of IoT will be empowered by _____
A.Network
B.Cloud
C.Devices
D.Connectivity _____ C.Devices

_____ layer is the communication layer that connects the IoT devices with WAN.
A.Internet layer
B.Application layer
C.Sensor layer
D.Network layer _____ D.Network layer

_____ either built into smoke alarm and thermostat or in the form of small plug - in.
A.Microphones
B.Loudspeaker
C.Microphone and loudspeaker
D.Mic _____ A.Microphones

_____ Will reduces the cost of the devices.
A.Intuitive
B.Voice telephony
C.Voice recognition
D.Voice Integration _____ D.Voice Integration

How many analog pins on an Arduino Uno board?
A.5
B.6
C.7
D.8 _____ B.6

Which of the following function is used to set any pin in the state of HIGH/LOW ?

A.digitalRead
B.digitalWrite
C.analogWrite
D.pinMode _____ B.digitalWrite

What does PWM stand for?

A.Pulse Width Modulation
B.Pulse Wide Module
C.Preventive Width Modulation
D.None of the other _____ A.Pulse Width Modulation

Which function in the Arduino IDE is used to set any pin in output or input state?

A.digitalWrite
B.delay
C.pinMode
D.analogRead _____ C.pinMode

How many PWM pins are present in the Arduino UNO?

A.1
B.3
C.6
D.9 _____ C.6

What among the following is an example of external interrupt for the Arduino?

A.Button

B.Resistor
C.LED
D.Capacitor _____ A.Button

What will be the correct syntax to make a digital pin (say D2) as an output pin?

A.pinMode(2,output)
B.pinMode(2,Output)
C.pinMode(2,OUTPUT)
D.pinmode(2,OUTPUT) _____ C.pinMode(2,OUTPUT)

Which of the following digital pins can be used in Arduino Nano/Uno to give interrupt?

A.D2
B.D6
C.D4,D5
D.D2,D3 _____ D.D2,D3

What is the size of EEPROM of the Arduino UNO?

A.1 KB
B.2 KB
C.4 KB
D.8 KB _____ A.1 KB

Which function in the Arduino is used to start the serial communication using the COM port?

A.Serial.available()
B.Serial.begin()
C.serial.begin()
D.setup() _____ B.Serial.begin()

The action that will be performed using this switch case will be:switch (2): {case 1: digitalWrite(11,HIGH); case 2: analogRead(A3)}

A.D11 will become HIGH
B.Analog value of A3 will be read
C.D11 will become LOW
D.None of the other _____ B.Analog value of A3 will be read

While taking the input from the user in Arduino, which of these function is used in Sketch?

A.Serial.print
B.Serial.println
C.Serial.available

D.None of the other _____ C.Serial.available

What is the Tinkercad Circuits?

A.Its a just s software to create games
B.Tinkercad is a free online collection of software tools that help people create and simulation circuits.
C.Its a software for playing and create games.
D.None of the other _____ B.Tinkercad is a free online collection of software tools that help people create and simulation circuits.

How do you zoom in on Tinkercad?

A.Spacebar
B.Use the arrows on the keyboard
C.Use the scroll wheel
D.Right Click _____ C.Use the scroll wheel

A photoresistor is an electronic component whose electrical resistance _____ when it is exposed to light.

A.changes
B.increases
C.doesn't change _____ A.changes

What does this syntax mean? myservo.attach(9)

A.Connect the control wire 9 to GND pin
B.Connect the control wire for 9 seconds
C.Connect the control wire to 9 volts
D.Connect the control wire to digital pin 9 _____ D.Connect the control wire to digital pin 9

In remote control terms, IR stands for what?

A.indirect radio
B.infrared
C.inside remote
D.instant reception _____ B.infrared

Infrared remote controls use what to carry signals between the remote control and the device it controls?

A.radio waves
B.sound

C.light _____ C.light

Infrared signals can be used for _____.
A.(a) long-range communication
B.(b) short-range communication
C.Both (a) and (b)
D.None of the other _____ B.(b) short-range communication

Which sensor is LM35?

A.Pressure sensor
B.Humidity sensor
C.Temperature sensor
D.Touch sensor _____ C.Temperature sensor

LM35 provides _____ Volt for each degree count?

A.1
B.0.01
C.0.001
D.10 _____ B.0.01

What is the main purpose of the SRF05 sensor?

A.Water level sensor
B.Sound intensity sensor
C.Ranging sensor
D.Temperature sensor _____ C.Ranging sensor

What is the purpose of the pin named ECHO of HC-SR04 sensor?

A.Allows the ultrasonic sound wave to be sent from the sensor.
B.Provides the information that the ultrasonic sound wave is returned.
C.Allows the sensor to be fed with energy.
D.Provides the chassis connection of the sensor. _____ B.Provides the information that the ultrasonic sound wave is returned.

What does the AREF pin on the Arduino UNO?

A.Used to trigger a interrupt.
B.Reference voltage for analog inputs.
C.To reset the microcontroller.
D.Provides 8-bit PWM signal. _____ B.Reference voltage for analog inputs.

What pins can the Arduino UNO board communicate with the computer?

A.PWM pins
B.ADC pins
C.I2C pins
D.UART pins _____ D.UART pins

What case is called serialEvent() interrupt?

A.Serial port shuts down.
B.When data is sent from the serial port.
C.When data comes from the serial port.
D.When the voltage is applied to the Arduino. _____ C.When data comes from the serial port.

Each computer has its own Internet search engine.

A.True
B.False _____ B.False

What does CRM stand for?

A.Customer Research Management
B.Customer Relationship Management
C.Customized Research Management
D.Customer Research Metrics _____ B.Customer Relationship Management

How has e-commerce revolutionized business?

A.It has allowed businesses to utilize new avenues of advertising, selling, and distribution.
B.It attempts to level the playing field.
C.It transcends geographic boundaries.
D.All of the above _____ D.All of the above

A _____ allows customers to continue browsing after selecting each item they wish to purchase

A.Shopping Cart
B.Forms-based interface
C.SSL connection
D.Virtual memory _____ A.Shopping Cart

Which of the following is NOT a standard used in E-Commerce?

A.EDI
B.XML

C.SETI
D.X12 _____ C.SETI

Which of the following is NOT the characteristics of consumer when studying about EC Consumer Behavior Model?

A.Age
B.Gender
C.E-mail
D.Education _____ C.E-mail

Mechanism to protect private networks from outside attack is

A.Firewall
B.Antivirus
C.Digital signature
D.Formatting _____ A.Firewall

While making payment using electronic check, credit and debit cards, the server authenticates the customers and verifies with the bank that funds are adequate before purchase

A.True
B.False _____ A.True

A computer communication technology that provides a way to interconnect multiple computer across short distance is

A.LAN
B.WAN
C.MAN
D.Wireless network _____ A.LAN

DNS is

A.The distributed hierarchical naming system
B.The vertical naming system
C.The horizontal naming system
D.The client server system _____ C.The horizontal naming system

Which of the following is a technology constraint from the e-commerce macro-environment?

A.Propensity for consumers to purchase online.
B.Opt-in to e-mail required to avoid SPAM
C.Likelihood of fraudulent transactions
D.Taxation at source of purchase _____ C.Likelihood of fraudulent transactions

In E-Commerce, HTTPS is a communication protocol that uses

A.Public key encryption
B.Secret key encryption
C.Private key encryption
D.Data key encryption _____ A.Public key encryption

The concept of electronic cash is to execute payment by

A.Credit Card
B.ATM Card
C.Using computers over network
D.Cheque _____ C.Using computers over network

A chemical manufacturer has transactions that are predominantly:

A.business to consumer.
B.consumer to consumer.
C.consumer to business
D.business to business _____ C.consumer to business.

A B2B reverse auction is:

A.the same as a seller auction.
B.intended to reduce the price by increasing competition from suppliers.
C.always run through a B2B marketplace.
D.both the second and third answers above. _____ B.intended to reduce the price by increasing competition from suppliers.

A computer system that permits multiple users to run programs at same time

A.Real time system
B.Multi programming system
C.Time sharing system
D.Multi tasking system _____ D.Multi tasking system

The mercantile process model consists of the following phase(s):

A.The pre-purchase phase
B.Purchase consummation phase
C.Post-purchase Interaction phase
D.All of the above _____ D.All of the above

The most serious disadvantage of e-auctions is:

A.the risk of fraud.
B.Logistics.
C.unreliable auction software.
D.payment delays. _____ A.the risk of fraud.

Many companies use intermediaries or trading assistants instead of implementing e-auctions themselves for each of the following reasons EXCEPT:

A.The company name is not widely recognized.
B.To bring many more buyers to the auction.
C.To avoid tax and legal fees.
D.Costs of auction intermediaries or assistants are less than the costs of physical auctions.
_____ C.To avoid tax and legal fees.

All of the following are potential benefits from auctions to sellers EXCEPT:

A.auctions can broaden the customer base and reduce cycle time.
B.sellers receive valuable price sensitivity information.
C.sellers are always anonymous.
D.sellers can liquidate large quantities of obsolete items very quickly. _____
C.sellers are always anonymous.

Select the correct answer from the choices below which is corresponding with the following statement in STRATEGIC PLANNING TOOLS" : It is a methodology that surveys external opportunities and threats and relates them to internal strengths and weaknesses.

A.SWOT analysis
B.strategy map
C.balanced scorecard
D.BCG matrix _____ A.SWOT analysis

A major shortcoming with authentication services is:

A.two different authenticators may come up with different opinions regarding the authenticity and description of a given item.
B.it is impossible to tell whether many items are reproductions or genuine.
C.dishonest authenticators are the primary sources of fraud on the Internet.
D.most auction sites forbid the use of authentication services. _____ A.two different authenticators may come up with different opinions regarding the authenticity and description of a given item.

_____ work best with many buyers and many sellers.

A.Bartering

B.Dynamic exchanges
C.Forward auctions
D.Reverse auctions _____ A.Bartering

The services provided through location-based m-commerce focus on key factors which include all of the following EXCEPT:

A.Geocaching, or determining the topography of an area.
B.Navigation, or plotting a route from one location to another.
C.Tracking, or monitoring the movement of a person or thing.
D.Timing, or determining the precise time at a specific location _____
A.Geocaching, or determining the topography of an area.

Infrastructures that "support" the wireless connection are:

A.network access points, mobile communications server switches, and cellular transmitters and receivers.
B.WAP gateways, GPS locators, and GPS satellites.
C.PDAs, smartphones, and portable computers.
D.web servers, mobile devices, and microbrowsers. _____ A.network access points, mobile communications server switches, and cellular transmitters and receivers.

A _____ is suitable for mobile users who need to make very short-range device-to-device wireless connections within a small space, such as a single room, and most commonly with Bluetooth.

A.personal area network
B.local area network
C.wireless area network
D.metropilitan area network _____ A.personal area network

You are walking near a coffee shop and suddenly your cell phone beeps with a message: "Come inside and get a free biscotti with any purchase." This is an example of:

A.permission marketing
B.location-based advertising
C.customer relationship management
D.m-commerce _____ C.customer relationship management

One way to share information with supply chain partners is wireless _____, which is the science of measuring physical phenomena such as temperature, volume, or an on/off condition at a remote point and transmitting the value to a distant recorder or observer

A.RFID
B.mobilization
C.osmosis

D.telemetry _____ D.telemetry

WiMax and 3G wireless mobile technologies offer telemedicine application opportunities that include all of the following EXCEPT:

A.Reduced threat of malpractice suits because there is no hands-on interaction between the remote physician and the patient.
B.Prescriptions can be transferred electronically to the appropriate pharmacy for a no-wait pick-up by the patient.
C.Real-time consultation between a patient in one location and a medical specialist in another.
D.Wearable heart monitors linked to a cell phone can automatically contact doctors or family members at the first sign of health problems. _____ A.Reduced threat of malpractice suits because there is no hands-on interaction between the remote physician and the patient.

All of the following about RFID are true EXCEPT:

A.An RFID tag can hold 20 times the amount of information a bar code can hold, and the tag can be read through cardboard, wood, and plastic at a range of up to 100 feet
B.An RFID tag includes an antenna and a chip with information about the item
C.An RFID reader contains a radio transmitter and receiver
D.An RFID tag remains inactive until radio frequency energy from the tag's radio transmitter hits its antenna, giving the chip enough power to emit a 96-bit string of information
_____ A.An RFID tag can hold 20 times the amount of information a bar code can hold, and the tag can be read through cardboard, wood, and plastic at a range of up to 100 feet

Digital Signature is

A.Scanned Signature on Computer
B.Code number of the sender
C.Public Key Encryption
D.Software to recognize signature _____ D.Software to recognize signature

The method(s) of payment for online consumers are

A.Electronic cash
B.Credit/debit
C.Electronic checks
D.All of the above _____ D.All of the above

Which of the following statements are INCORRECT about company-centric marketplaces?

A.They are marketplaces which focus on a single company's purchasing needs or selling needs.
B.They are generally public entities owned by that company.
C.They support for buying needs (many to one, or buy-side).

D.They support for selling needs (one to many, or sell-side). _____ B.They are generally public entities owned by that company.

As in e-commerce, m-commerce B2C applications are concentrated in each of the following areas EXCEPT:

A.retail shopping for products and services
B.telecommunications
C.targeted advertising
D.providing content for a fee through mobile portals _____
B.telecommunications

All of the following about wireless wide area networks (WWAN) are true EXCEPT:

A.The single WWAN network standard insures compatibility of handsets within and between countries.
B.Most WWANs are cellular phone networks.
C.At the center of each cell is a base station transceiver or cell tower that is used to send and receive signals to and from mobile devices operating within the cell.
D.When a device is turned on, a SIM card inside the device identifies itself to the WWAN.
_____ A.The single WWAN network standard insures compatibility of handsets within and between countries.

Which of the following is an example of edutainment?

A.Two or more students sharing music over the Internet
B.An online science fiction game whose object is to blast as many aliens as possible in a 60 second round
C.A community college providing an online college course on digital media
D.An online game that uses colorful characters to teach young children about numbers
_____ D.An online game that uses colorful characters to teach young children about numbers

Which of the following statements about blogs is not true?

A.A blog is a personal Web site, open to the public, in which the owner expresses his or her feelings or opinions.
B.Blogs became very popular after the September 11, 2001 terrorist attacks when people were looking for as many sources of information as possible and for personal connections to the tragedy.
C.Blogs are limited to one-way communication.
D.The most common types of blogs are professional blogs. _____ C.Blogs are limited to one-way communication.

P2P systems have all of the following key characteristics EXCEPT:

A.They provide for real-time access to other users through techniques such as instant messaging and multichannel collaboration applications.
B.The users' computers can act as both clients and servers.
C.The overall system is well integrated, but lacks tools for easy creation of content or for adding functionalities.
D.They support cross-networking protocols such as SOAP or XML-RPC, which enables a program on one computer to execute a program on a server computer. _____
C.The overall system is well integrated, but lacks tools for easy creation of content or for adding functionalities.

More and more people are willing to pay for digital music, as shown by the success of _____.

A.Napster
B.Kazaa
C.Apple's iTunes
D.P2P _____ C.Apple's iTunes

All of the following are examples of e-government EXCEPT:

A.a company sells army and navy surplus supplies at auction over the Internet.
B.a contractor submits an application for a building permit using a city hall Web site.
C.an unemployed worker consults a Web site operated by the state employment department to learn about job openings in his city.
D.a state purchasing officer places an online order for office supplies from an e-catalog sent to her by a national office supply store. _____ A.a company sells army and navy surplus supplies at auction over the Internet.

A(n) _____ is a computer system capable of integrating, storing, editing, analyzing, sharing, and displaying spatial information.

A.geographical information system
B.global positioning system
C.l-commerce system
D.on-star system _____ A.geographical information system

P2P systems have all of the following key characteristics EXCEPT:

A.They provide for real-time access to other users through techniques such as instant messaging and multichannel collaboration applications
B.The users' computers can act as both clients and servers
C.The overall system is well integrated, but lacks tools for easy creation of content or for adding functionalities
D.They support cross-networking protocols such as SOAP or XML-RPC, which enables a program on one computer to execute a program on a server computer _____
A.They provide for real-time access to other users through techniques such as instant messaging and multichannel collaboration applications

The tasks of KM include each of the following EXCEPT:

A.creating knowledge repositories where knowledge can be stored and retrieved easily
B.enhancing a knowledge environment in order to conduct more effective knowledge creation, transfer, and use
C.restricting knowledge access to prevent its transfer between individuals
D.managing knowledge as an asset so as to increase the effective use of knowledge assets over time _____ C.restricting knowledge access to prevent its transfer between individuals

_____ involves using various computer-based tools and techniques to analyze transaction data and generate new ideas

A.Knowledge creation
B.Knowledge capture
C.Knowledge classification
D.Knowledge management _____ A.Knowledge creation

Most universities use e-learning:

A.exclusively in reaching students who couldn't otherwise attend classes.
B.only when forced by administrators to use it as a way to recruit distant students or reduce costs.
C.as a total replacement for traditional classrooms.
D.as a supplementary channel to traditional classrooms. _____ D.as a supplementary channel to traditional classrooms.

One initiative underway that could lead to widespread support for the introduction of RFID is the _____, which identifies the manufacturer, producer, version, and serial number of each item and does not require line-of-sight contact to be read.

A.Electronic Product Code
B.Universal Product Code
C.Smart Product Network
D.Sensor Network _____ A.Electronic Product Code

Wal-Mart and Levi Strauss collaborate on demand forecasting in order to optimize the flow of materials along the supply chain. This is an example of:

A.reducing design cycle time
B.APS (Advanced Planning and Scheduling)
C.CPFR (Collaborative Planning, Forecasting and Replenishment)
D.reducing product development time _____ C.CPFR (Collaborative Planning, Forecasting and Replenishment)

A major block in the widespread implementation of collaborative commerce is:

A.the theory of collaborative commerce hasn't been proven effective in real-world applications.
B.the technology needed isn't available.
C.collaborative commerce is extremely expensive.
D.the lack of universally accepted standards. _____ D.the lack of universally accepted standards.

Which of the following is an example of a closed loop system?

A. Dishwashing machine
B. Air-conditioning unit
C. Bread toaster
D. Electric hand drier
E. Automatic door opener _____ B. Air-conditioning unit

IoT gateway is:

A. Physical device

B. Software program

C. Raspberry Pi

D. All of the above - - - - - D

(True or False)

Gateways can be configured to perform pre-processing of the collected data from thousands of sensors locally before transmitting it to the next stage.

A. True

B. False - - - - - A

IoT gateways perform several critical functions such as: (Which one is wrong).

A. Device connectivity

B. Protocol translation

C. Improving networks

D.Data filtering and processing, security - - - - - C

An IoT gateway device bridges the communication gap between: (Which one is wrong).

A. end users

B. IoT devices

C. Sensors

D. cloud - - - - - A

Before purchasing one gateway device you should consider: (Which one is wrong).

A. Network Security

B. Uptime

C. Power

D. Downtime - - - - - B

Which one isn't key core principles of security for IoT gateway.

A. Strategy

B. Confidentiality

C. integrity

D. authentication - - - - - A

Which device is often to be attacked in IoT system.

A. Sensor

B.Actuator

C. Gateway

D. Cloud Server - - - - - C

The maximum number of IPv4 address is:

A. 2^32

B. 2^64

C. 2^128

D. 2^256 - - - - - A

The maximum number of IPv6 address is:

A. 2^32

B. 2^64

C. 2^128

D. 2^256 - - - - - C

How many byte an IPv4 address has:

A. 32

B. 4

C. 16

D. 64 - - - - - B

Which of the following IPv4 address is in correct format.

A. 172.16.400.3

B. 172.a4.400.3

C. 172.16.286.3

D. None of the above - - - - - D

The benefits of IPv6 are (which one is wrong).

A. more private address collisions

B. Auto-configuration

C. Flexible options and extensions

D. No more NAT (Network Address Translation) - - - - - A

Which of the following IP address is wrong?

A. 43.126.38.91

B. 126.133.254.1

C. 22.131.256.3

D. 222.222.222.222 - - - - - C

The protocol for Internet is:

A. TCP/IP

B. ZigBee

C. Wi-Fa

D. Bluetooth - - - - - A

An automatic telephone switch has:

A. Memory

B. Service logic

C. Controller

D. All of the above - - - - - D

Are VPNs legal?

A. Yes in all countries

B. Not at all

C. Yes In some countries

D. Needs permission In the USA - - - - - C

What you should considered more when you are buying VPN:

A. Speed, privacy and security

B. Cost

C. Security

D. Free trials and money back guarantees, - - - - - A

It is safe to use public Wi-Fi hotspots if you are connected to

A. Internet server

B. ISP

C. VPN provider

D. All of the above - - - - - A

Which one is wrong for cloud and IoT cloud?

A. The cloud is just a metaphor for the Internet

B. The cloud is a Secure Internet provider

C. Cloud integrates billions of devices, sensors, gateways, protocols and data storage

D. IoT cloud is a sophisticated high performance network of servers - - - - - B

Which one is wrong for cloud and IoT cloud?

A. IoT cloud covers all things, objects, people and animals

B. Internet clouds covers all computers, mobiles, other peripherals and people

C. All countries must use one IoT Network

D. No difference between IT cloud and IoT cloud

E. Cloud computing and Internet of Things (IoT) are two very different technologies. - - - - - D

What are not the major components of Internet of Things?

A. Cloud

B. ISP

C. User Interface

D. Analytics - - - - - B

IoT Networks must be standard, because:

A. Different devices are manufactured by different companies!

B. Of security

C. All countries must use one IoT Network

D. None of the above - - - - - A

Which one is NOT an example of user interface?

A. Smartphone

B. www - web pages

C. Gateway

D. Your PC - - - - - C

For sending signals via radio stations channels, you should either:

A. Increase Power Energy of radio station or Decrease Bandwidth!

B. Increase Power Energy of radio station and
Increase Bandwidth!

C. Decrease Power Energy of radio station and Decrease Bandwidth!

D. Decrease Power Energy of radio station or Increase Bandwidth! - - - - - A

Morse communication sends characters less than:

A. 4K bit/second

B. 100 bit/second

C. 20 bit/second

D. 1K bit/second - - - - - C

Which one is wrong about Bandwidth and Range?

A. NFC has Low BW and Low Range

B. Bluetooth has Low BW and Low Range

C. Lora has Low BW and Low Range

D. Mobile 4G/LTE has Low BW and Low Range - - - - - D

The four important layers in IoT Ecosystems are:

A. sensor layer

B. network layer

C. platform layer

D. application layer

E. all of the above - - - - - E

What are the major components of the Internet of Things:

A. Things/devices

B. gateway

C. cloud

D. analytics

E. user interface

F. all of the above - - - - - F

What is the difference b/w Normal Device and IoT Devices?

A. Connected devices is about connecting and communicating b/w devices

B. However, IoT goes beyond to include people, things, and software systems

C. A and B - - - - - C

Types of networks include:

A. PAN

B. LAN

C. MAN

D. WAN

E. all of the above - - - - - E

Some examples of wireless technology are:

A. Cordless phone

B. GPS units

C. Wireless computer parts/satellite tv

D. Zigbee, cellular, wireless networking, LoRa, LiFi,Wifi, BT

E all of the above - - - - - E

NFC allows a short range of less than:

A. 20 cm

B. More than 20 cm

C. less than 20 mm

D. more than 20 mm - - - - - A

Only veryy few cell phones support NFS as it has:

A. Low transmission capacity

B. High transmission capacity

C. Medium transmission
capacity

D. Non transmission capacityy - - - - - A

The wireless communication tech not belong in the home area network is:

A. RFID

B. NFC

C. Wi-Fi

D. LoRa - - - - - D

In IoT networking, we need the WAN because:

A. We want to communicate with IoT devices everywhere.

B. We want to communicate with ppl everywhere

C. We want to communicate with high performance apps

D. we want to communicate with high security - - - - - A

Radio stations, for sending signals far from stations using:

A. High power Energy (Kilowatt)

B. High Power Energy (Megawatt)

C. High Frequency (Kilo Hertz)

D. High Frequency (Mega Hertz) - - - - - A

IoT Network's need:

A. To use low power energy

B. To use high power energy

C. to send signals not far from transmitter

D. a and b are correct - - - - - D

In IoT networks we are looking for:

A. sending signals far, using low power energy

B. sending signals near using low power energy

C. sending signals far, using high power energy

D. sending signals near, using high power energy - - - - - A

The correct definition for bandwidth is:

A. capacity of channel

B. the range of frequencies within a given band, in particular that used for transmitting a signal

C. Rate at which electronic signals can travel thru a medium such as wire, cable, or channel.

D. all the above - - - - - D

For sending signals via radio stations channels, you should either:

A. increase power energy of radio station or decrease bandwidth

B. decrease power energy of radio station or decrease bandwidth

C. increase power energy of radio station or increase bandwidth

D. decrease power energy of radio station or increase bandwidth - - - - - A

Bandwidth may be thought of as the width of the 'pipe' through which data travels:

A. Greater the width, larger the amount of data can flow through it.

B. Smaller the width, larger the amount of data can flow through it.

C. Greater the width, smaller the amount of data can flow through it.

D. smaller the width, larger the amount of data can flow through it. - - - - - A

Morse communications sends characters less than:

A. 4k bit/second

B. 100 bit/second

C. 20 bit/second

D. 1k bit /second - - - - - C

About the bandwidth and range of NFC, which one is correct?

A. low BW and low range

B. high BW and low range

C. low BW and high range

D. high BW and high range - - - - - A

Bluetooth is used:

A. for small devices low BW and small battery

B. for small devices high BW and small battery

C. for small devices low BW and big battery

D. for large devices low BW and small battery - - - - - A

Which one is correct for LoRa technology?:

A. Low BW but long range (no limit by physics, limited by human)

B. High BW but long range (no limit by physics, limited by human)

C. Low BW but long range (no limit by physics and by human)

D. High BW but long range (no limit by physics and by human) - - - - - A

Which of the following technology is closer to the standard of mobile technology?

A. LoRa

B. NSF

C. RFID

D. Bluetooth - - - - - A

Which one related to bandwidth and range, is wrong?

A. NFC has low BW and low range

B. Bluetooth has lowBW and low range

C. LoRa has low BW and low range

D. Mobile 4G/LTE has low BW and Low Range - - - - - D

Most modern smart devices and sensors can be connected to low power wireless networks like WiFi, ZigBee, Bluetooth, Z-wave, LoRaWan and each of these wireless technologies has its own pros and cons in terms of:

A. Power

B. Data transfer rate

C. Overall efficiency

D. All of the above - - - - - D

In the area of IoT developments, researchers are looking for:

A. Low power, low cost wireless transmitting devices

B. Long battery life

C. Efficiency of battery

D. All of the above - - - - - D

In order to achieve intelligent D2D communication, devices require:

A. intelligent routing protocols

B. intelligent routing internet

C. intelligent routing gateway

D. intelligent routing routers - - - - - A

ZigBee is an IEEE 802.15.4-based spec for a squire of high level comm protocols used to create PANs w/ small, low-power digital radios, such as home automation, medical device data collection, and other low-power low-bandwidth needs, designed for small scale projects which need wireless connection

A. True

B. False - - - - - A

ZigBee is:

A. A low power

B. Low data rate

C. Close proximity

D. All of the above - - - - - D

Protocol IEEE 802.11 is:

A. a set of media access controls(MACs)

B. a set of physical layers

C. Specifications for implementing WLAN computer communication in the 900 MHz and 2.4,3.6, 5, and 60 GHz frequency bands.

D. The standard and amendments provide the basis for wireless network products using WiFi brand

E. all of the above - - - - - E

Wi-Fa is a technology for wireless local area networking with devices based on:

A. IEEE 802.11 standards

B. Wi-Fi using radio waves

C. Wi-Fa providing wireless high speed intternet

D. Wi-Fi providing network connections

E. all of the above - - - - - E

Which one is correct in terms of Wi-Fi:

A. Wireless Fidelity

B. Wi-Fi is simple a trademarked phrase that means: IEEE 802.11x

C. Wi-Fi is wired technology

D. Wi-Fi is useful for WAN network - - - - - B

What is used to provide IoT sensors access to the network? - - - - - A microcontroller

What limits the type of different objects that can become intelligent sensors on the internet of things - - - - - Doorbells, garage doors, smartwwtvhes

What devices provides auto discovery services for smart devices that are connected to the network - - - - - The home gateway

What are two requirements to connect a smart device to a home wireless network - - - - - An IP address and an SSID

What are two things that all digital devices need in order to work? - - - - - Data & programing

What is the purpose of packet tracer? - - - - - To simulate and visualize one or more networks

What is the largest network in existence? - - - - - The internet

What type of network is the connection between a Bluetooth headset and a vehicle? - - - - - PAN

Which type of network consists of wired computers in a college classroom? - - - - - LAN

What is an open source physical computing platform that can take input from a variety of switches or sensors to control physical objects? - - - - - Arduino

Which technology is used as a visual programming tool to create a program by connecting colored blocks - - - - - Blocky

Which two skills help with IoT prototyping? - - - - - Programing, design

Which describes global variables in programming languages? - - - - - Anywhere in a program it can be used

What are two characteristics of the Python programming language? - - - - - Easy to read code & it runs without conversion to machine learning

Change will have to occur in the corporate network in order to prepare for the Internet of things. Which type of testing would a company do to demonstrate the benefits of networking a new "thing" that was not on the network before - - - - - Prototyping

What are three attributes of data that would indicate that it may be big data - - - - - Variety, volume, velocity

What are three benefits of cloud computing - - - - - It eliminates or reduces the need for onsite maintenance and management

What is the purpose of data analytics - - - - - To gain insights from data

How was data that has been collected through sources such as webpages, audio, or tweets categorized? - - - - - Unstructured

True or false? Comma-separated values (CSV), JSON and XML are all tools that can be used to manipulate structured data - - - - - True

Mined data can be visualized through the use of charts. What are the criteria that can be used to determine the best chart selection. - - - - - Number of variables shown
Items requiring comparison.

What are two features of automation? - - - - - A process that is self driven & process that might eliminate human intervention

Which technology has the intelligence that is demonstrated by machine in a way that mimics human cognitive functions? - - - - - AL

Which technology is a subset of AL that uses statistical technique to enable computers to "learn" from collected data - - - - - ML (machine learning)

What is a key feature of the assurance element of the intent-based networking model? - - - - - End to end Verification of network

Which security best practices involves defining company rules, job duties and expectations - - - - - Developing a security policy

What are two areas of physical security which - - - - - Outside perimeter security & inside perimeter security

A company requires using a secure encrypted Internet connection when connecting to the corporate network from outside the company. Which technology should be used when employees travel and use a laptop - - - - - VPN

Which character is used within a search engine to gather data efficiency by placing the character before and after the name of the particular person - - - - - Quotation marks

Which two type of institutions do malicious web pages often look like - - - - - Bank website & financial institution

What are some examples of data types that would be classified as personally identifiable information (PII) - - - - - Social security number, email address, bank account number, fingerprint

True or false? With artificial intelligence, smart devices can modify processes and settings on the fly in responses to changes on the network - - - - - True

What is the core components of intent-based networking? - - - - - Artificial intelligence

FOR - - - - - Repeat the execution of a specific block of code for a specific number of times

While - - - - - Execute A block of code while condition is true

IF THEN - - - - - Allow the code to make decisions

fog computing - - - - - An architecture that utilizes edge devices for data pre-processing and storage

Cloud services - - - - - A collection of data centers or connected servers that provide anywhere anytime access to data and applications

Distributed processing - - - - - Breaks large volumes of data into smaller pieces which are processed by computers in different locations

Hadoop - - - - - A comprehensive ecosystem of open source software for big data management

In an industrial fan maintenance system, what physical change does Ian Howard say a sensor might detect, measure and transmit data on?

A. Vibration

B. Blade speed

C. Power

D. Wind direction - - - - - A. Vibration

Which word or phrase most accurately sums up the main benefit of IoT technology?

A. Economies

B. Enhanced safety

C. Accuracy

D. Efficiencies

E. Energy use

F. Response time - - - - - D

What protocol is good for communication of IoT devices with restricted power and low data rates over a range of a few kilometres ?
Which of these media is currently NOT used in communicating data?
Wireless / electromagnetic waves
Hydrogen cables / electro ionisation
Fibre optics / pulses of light
Copper cables / electrical signals

A. Bluetooth

B. Zigbee

C. LoRaWAN

D. 4G

E. WiFi - - - - - C

Communication in a network is carried via a _____ ?

A. Sensor

B. Router

C. Medium

D. Device

E. Controller - - - - - C

How does the addition of data due to IoT create privacy issues?

A. Systems struggle to deal with the large amount of data so data gets 'stuck outside security' waiting to be dealt with

B. Multiple data sets each stripped of identification initially can be combined as a whole and reveal identity

C. More data going through security measures inevitably means more security breakdowns and data leakage

D. IoT devices generally connect wirelessly creating additional harder to secure channels for data hijack - - - - - B

How does fog computing reduce security risks?

A. It acts on IoT data closer to the source

B. It creates unclear connections that are difficult to intercept

C. It reduces the need for remote management

D. It scrambles electronic signals and encrypts all data - - - - - A

A vacuum cleaner has a maximum power consumption of 1000 W and is powered by 240 Volts. What is the current used?

A. 24 amps

B. 4.17 amps

C. 0.24 amps - - - - - B

If you need to increase the current through a resistor in a circuit, what would you do?

A. Decrease the voltage applied to the resistor.

B. Increase the voltage applied to the resistor.

C. Increase the room temperature.

D. Increase the value of the resistor.

E. All of the above. - - - - - B

What type of device is the door alarm? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - A

What type of device is the moisture detector? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - A

What type of device is the CPU? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - C

What type of devices are the power supplies? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - D

Sometimes many devices share the same set of wires. This connection mode is referred to as a _____? (sơ đồ)

A. Train

B. Bus

C. Multi-point connection - - - - - B

What sort of actuator would you use to control the movement of a conveyor belt?

A. A linear actuator

B. An AC motor

C. A thermocouple

D. A water pump

E. A rubber belt - - - - - B

If we intend to include a servo motor as an actuator, what feature should we include when selecting a microcontroller?

A. Analogue to Digital converter

B. Digital to Analogue converter

C. GPIO pins

D. Pulse Width Modulation pin

E. I2C pins - - - - - D

Which of the following disruptions - caused by vehicles becoming fully autonomous - were the people surveyed most worried about?

A. Reduced private ownership of cars.

B. Less traffic lights on roads.

C. Reduced number of driving jobs.

D. Less space needed for parking.

E. Reduced vehicle emissions. - - - - - A

Which of the following is one of the ways IoT monitoring of dairy cows improves dairy farming?

A. The system tells you when cows are ready for milking, saving time spent on monitoring the herd.

B. The system can sound alarms when cows roam into neighbouring paddocks.

C. The system notices the cows that are unwell, so they are treated quicker, which speeds up recovery time.

D. The system results in more milk from the cows' udders for each milking. - - - - - C

What does the 'things' in Internet of Things refer to?

A. Smart phones and tablets.

B. Machines and vehicles that operate themselves

C. A physical object with embedded electronics - - - - - C

The IoT increases the potential for machines to make smart decisions based on collected data, and to act on them, leaving people (apart from the original programmers and those setting the parameters) out of the loop. This is called M2M. Select an example of M2M from the descriptions below.

A. A sensor on a milking cow indicates that she is moving in a way that suggests she in on heat and will be receptive to insemination. She is placed on a watch list and the herd manager chooses to draught her out, after milking, for insemination.

B. An autonomous ambulance on an emergency call approaches an intersection and communicates with the signals to change the lights from red to green, to allow smooth passage through the intersection.

C. Sensors on a bridge detect strain in bridge joints. Areas of concern are flagged with the maintenance team who can respond to specific problems, rather than carrying out lengthy inspections. - - - - - B

What is the main advantage of IPv6, and why does it suit IoT?

A. IPv6 provides many more IP addresses, which increases the potential number of hosts and amount of data.

B. IPv6 is more up to date protocol with leaner mechanisms which suit modern microprocessors.

C. IPv6 is faster and can carry more data. - - - - - A

Which of these sentences could be a line of programming code?

A. If temperature is more than 30 degrees C, run fan, else, run heater

B. When it gets too hot, turn the fan on otherwise keep heating the room

C. Run heater until temperature reaches 30 degrees C then cool it down - - - - - A

Why will IoT put a strain on internet infrastructure?

A. The unprecedented amount of data

B. The variety of IoT protocols

C. The large number of unsecured devices connecting to the internet - - - - - A

Which of the following is NOT a security measure?

A. Encryption

B. Password

C. Firewall

D. Firmware - - - - - D

A DC motor requires a current of 10 Amperes to operate at full speed. The battery attached supplies 12 Volts. What resistance is required in the circuit to provide exactly 10 A to the motor?

A. 12 ohms

B. 120 ohms

C. 1.2 ohms - - - - - C

What type of device is the water valve? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - B

In a communications network, peers can send messages to: (sơ đồ)

A. Peers in the same layer only

B. Peers in any layer

C. Peers in the layers above and below only - - - - - A

How can IoT help combat climate change?

A. Smart devices working to reduce energy use.

B. Prevention of methane release from cows.

C. Free internet in cities to help people operate in the city more easily.

D. Predictive maintenance of wind turbines, preventing burn out. - - - - - A

Smart cities use the Internet of Things to improve the quality of citizens' lives. True or False?

A. True

B. False - - - - - A

Sensors play a big part in the Internet of Things, collecting data from the physical world. There is a long and growing list of sensor types, but some of the more common ones are found in smart phones. Which sensor in your phone collects information on your physical activity for health apps?

A. Gyroscope

B. Magnetometer

C. Proximity sensor

D. Accelerometer - - - - - D

When the gate system at the dairy closes one gate and opens another to direct a cow into a particular area, what is (or what are) the actuators in play?

A. RF antennae detecting ID of cow

B. Light sensors detecting cow in gate

C. Pneumatic arms on gate mechanism

D. Movement sensor in cow's pendant - - - - - C

Which of these media is currently NOT used in communicating data?

A. Wireless / electromagnetic waves

B. Hydrogen cables / electron ionisation

C. Fibre optics / pulses of light

D. Copper cables / electrical signals - - - - - B

When you upload a photo from your camera to a social media site, what kind of path is the information likely to travel?

A. End device -> Modem -> Controller -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server

B. End device -> Controller -> Modem -> Your ISP -> Networks and Routers -> social media site's server -> social media site's ISP

C. End device -> Controller -> Modem -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server

D. Controller -> Modem -> Your ISP -> Networks and Routers -> social media site's ISP -> social media site's server -> End device - - - - - C

All of the parts of a complete IoT process need programming. But where in the following IoT process is programming needed for the system to be Internet of Things?

A. Soil sensor to microcontroller to the Cloud to microcontroller to fertilising mechanism

B. Soil sensor and Cloud and fertilising mechanism

C. Microcontroller and Cloud

D. Soil sensor and Microcontroller

E. Soil sensor and fertilising mechanism - - - - - C

What are the descriptors for Big Data? (as coined by IBM)

A. Speed, True, Diversity, Amount

B. Vast, Velocity, Variance, Verified

C. Volume, Velocity, Variety, Veracity - - - - - C

Which of the following functions does NOT apply to a typical data centre's services?

A. Data storage

B. Data management

C. Data analysis

D. Data security

E. Data generation - - - - - E

What data security concerns do IoT devices pose?

A. The device being hijacked to harm another device or system

B. Because they are small and low powered, they can't carry much software including security software leaving them open to data theft or disruption

C. The devices being small and embedded into objects makes them easily vandalised or stolen - - - - - B

The resistance of a heater coil is 10 Ohms and the input voltage is 120V. What is the current?

A. 12 amps

B. 1,200 amps

C. 0.083 amps - - - - - A

When current flows through a resistor, the power involved produces heat. What measures can be taken to reduce the generation of heat inside a computer?

A. Reduce the voltage from the power supply.

B. Increase the total resistive value in the circuit.

C. Increase the physical size of resistors.

D. Use capacitors on the output of the power supply.

E. All of the above. - - - - - A

The combination of a transducer with its signal conditioner is called a _____ ?

A. Instrumentation Amplifier

B. Sensor

C. Thermistor

D. ADC - - - - - B

The combination of conditioning plus the element being controlled by the computer is called a _____ ?

A. DAC

B. Instrumentation amplifier

C. Motor

D. Actuator - - - - - D

In the system above, what type of device is the outdoor camera? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - A

What type of device is the 100K resistor? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - D

What type of device is the garden light? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - B

What type of device is the internet? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - D

What type of device is the rain detector? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - A

What type of devices are the relays? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - B

What is another way of thinking of the DTE? (sơ đồ)

A. As a Modem

B. As a Computer

C. As a Router - - - - - B

Which of the following IS NOT criteria to help select a wired communication protocol?

A. Speed

B. Number of wires per connection

C. Ability to transmit and receive information at the same time

D. Number of devices that need connecting

E. Distance to the nearest power point

F. Maximum distance between master and slaves - - - - - F

Bluetooth uses low power radio waves in the frequency range of ...?

A. 2.4 - 2.485Hz

B. 2.4 - 2.485GHz

C. 2.4 - 2.485MHz - - - - - B

Bluetooth has three classes, namely:

A. Industrial, Scientific, Medical

B. Class 1, Class 2 and Class 3 (100m, 10m and 1m range)

C. I, M and R (Industrial, Mobile and Rarely used) - - - - - B

Bluetooth is named after:

A. The scientist who invented it, who had blue teeth

B. The company that invented it, Ericsson's founder Harald Bluetooth

C. Danish King, Harald Gormsson who promoted communication between Denmark and Norway - - - - - C

In an IoT smart home system, sensors are connected to the home power outlet and are required to process some part of the collected data. What would be the best option to connect sensors to each other, as well as a central location for Internet connection, where high data rate is required?

A. Bluetooth

B. 6LowPAN

C. WiFi

D. LoRa - - - - - C

Fill in the blank: System _____ can be a major problem, especially in badly designed closed-loop systems, as they may try to over-correct any errors which could cause the system to lose control and oscillate.

A. stability

B. scalability

C. security

D. useability

E. feedback - - - - - A

Which terminology deals with the excitation or stimulus applied to a system from an external source, for the generation of an output?

A. Input signal

B. Output signal

C. Error signal

D. Analogue signal

E. Feedback signal - - - - - A

One advantage of a closed loop feedback system is:

A. Simplicity of design

B. Ability to react to disturbances in the system

C. It is less stable than an open loop system

D. Depends on calibration for accuracy

E. All of the above - - - - - B

Bit resolution
Fill in the blank. If we want to measure the temperature of a solution in a chemical process to within 0.1 degree Celsius, over a range of 100 degrees, our development board would need a _____ converter to meet that requirement for accuracy.

A. 8 bit

B. 10 bit

C. 16 bit

D. 32 bit - - - - - B

Secret-key encryption is also known as

A.Asymmetric encryption
B.Symmetric encryption
C.Secret-encryption
D.Private encryption - - - - - D.Private encryption

When you have a potential IoT idea you want to develop properly, what must you first define?
A.Its Unique Value Proposition
B.Problem it sets out to solve
C.Route to market
D.How it will work - - - - - B.Problem it sets out to solve

Is it useful completing a business plan for a personal or in-house IoT product?
A.Yes
B.No - - - - - A.Yes

What is Fog computing?
A.It is a type of computing that enhances P2P applications.
B.It is a type of computing that sends controller data to a sensor.
C.It is a type of computing that disperses servers and services globally in distributed data centers.
D.It is a type of computing where services are hosted where they are used, such as at the network edge or with end devices. - - - - - D.It is a type of computing where services are hosted where they are used, such as at the network edge or with end devices.

What is an example of cloud computing?
A.A continuous interaction between people, processes, data, and things.
B.A service that offers on-demand access to shared resources.
C.A network infrastructure that spans a large geographic area.
D.An architectural style of the World Wide Web. - - - - - B. A service that offers on-demand access to shared resources.

What is used to uniquely identify devices connected to the Internet?
A.gateway address
B.IP address
C.device name
D.URL - - - - - B.IP address

Which word or phrase most accurately sums up the main benefit of IoT technology?
A.Accuracy
B.Efficiencies
C.Energy use
D.Response time - - - - - B.Efficiencies

How can IoT help combat climate change?
A.Smart devices working to reduce energy use.
B.Prevention of methane release from cows.
C.Free internet in cities to help people operate in the city more easily.
D.Predictive maintenance of wind turbines, preventing burn out. - - - - - A.Smart devices working to reduce energy use.

Which of the following disruptions - caused by vehicles becoming fully autonomous - were the people surveyed most worried about?
A.Reduced private ownership of cars.
B.Less traffic lights on roads.
C.Reduced number of driving jobs.
D.Less space needed for parking.

E.Reduced vehicle emissions. - - - - - D.Less space needed for parking.

Smart cities use the Internet of Things to improve the quality of citizens' lives. True or False?
A.True
B.False - - - - - A.True

Which of the following is one of the ways IoT monitoring of dairy cows improves dairy farming?
A.The system tells you when cows are ready for milking, saving time spent on monitoring the herd.
B.The system can sound alarms when cows roam into neighbouring paddocks.
C.The system notices the cows that are unwell, so they are treated quicker, which speeds up recovery time.
D.The system results in more milk from the cows' udders for each milking. - - - - - C.The system notices the cows that are unwell, so they are treated quicker, which speeds up recovery time.

What are the descriptors for Big Data? (as coined by IBM)
A.Speed, True, Diversity, Amount
B.Vast, Velocity, Variance, Verified
C.Volume, Velocity, Variety, Veracity - - - - - C.Volume, Velocity, Variety, Veracity

Which of the following functions does NOT apply to a typical data centre's services?
A.Data storage
B.Data management
C.Data analysis
D.Data security
E.Data generation - - - - - E.Data generation

Which terminology deals with the excitation or stimulus applied to a system from an external source, for the generation of an output?
A.Input signal
B.Output signal
C.Error signal
D.Analogue signal
E.Feedback signal - - - - - A.Input signal

Closed-loop Systems use feedback where a portion of the output signal is fed back to the input to reduce errors and improve stability.
A.True
B.False - - - - - A.True

Which challenge comes under securing the information?
A.Signaling
B.Security
C.Presence detection

D.Power consumption - - - - - B.Security

Which challenge comes under IoT devices, reliable bidirectional signaling.
A.Signaling
B.Security
C.Presence detection
D.Power consumption - - - - - A.Signaling

Which challenge comes when we use many devices on the same network?
A.Signaling
B.Security
C.Presence detection
D.Power consumption - - - - - D.Power consumption

Which of the following issues are considered in IoT?
A.Security Issue
B.Reliablity Issue
C.Standard Issue
D.All issues - - - - - D.All issues

IoT is a paradigm that involves ubiquitous presence in the environment.
A.True
B.False - - - - - B.False

IoT stands for _____
A.Industrial Internet of Things
B.Internet Internet of Things
C.Intelligence Internet of Things
D.Internal Internet of Things - - - - - A.Industrial Internet of Things

Which possibility ensures load balancing and peak levelling of energy consumption?
A.Transportation and logistics
B.Energy and utilities
C.Automotive
D.Connected supply chain - - - - - C.Automotive

Which possibility connects the production line to suppliers?
A.Transportation and logistics
B.Energy and utilities
C.Automotive
D.Connected supply chain - - - - - D.Connected supply chain

Which possibility is highest contributor to cost overhead for manufacturing facilities?

A.Transportation and logistics
B.Energy and utilities
C.Plant control flow operation
D.Energy management and resource optimization - - - - - D.Energy management and resource optimization

_____ will enable the humans to access, control and manage the operation.
A.IoT
B.Bigdata
C.Network
D.Communication - - - - - A.IoT

In _____ the embedded devices and objects working under IoT are resource constrained.
A.Health
B.Industry
C.Home
D.Information system - - - - - D.Information system

What type of networks is interacting under IoT?
A.Heterogeneous only
B.Homogeneous Only
C.Both hetero and homogeneous
D.Neither hetero nor Homo - - - - - A.Heterogeneous only

Managing of resources can be done by implementing _____
A.Protocols
B.Algorithms
C.Networks
D.Protocols and algorithms - - - - - D.Protocols and algorithms

Resource management will elaborate the key aspects of _____
A.Industrial managements
B.Energy management
C.Network management
D.Information management - - - - - C.Network management

Which category finds an increase in applications targeting health and fitness?
A.Personal IoT
B.Group IoT
C.Community IoT
D.Industrial IoT - - - - - A.Personal IoT

Which category is used in the context of connected cars?
A.Personal IoT

B.Group IoT
C.Community IoT
D.Industrial IoT - - - - - B.Group IoT

Which category could be used by citizens to contribute to a smart city?
A.Personal IoT
B.Group IoT
C.Community IoT
D.Industrial IoT - - - - - C.Community IoT

Which category is used for business to consumer process?
A.Personal IoT
B.Group IoT
C.Community IoT
D.Industrial IoT - - - - - D.Industrial IoT

Voice recognition software and virtual assistant programs offer for _____ and _____
A.Communication
B.Communication and Entertainment
C.Entertainment
D.Communication and Software - - - - - B.Communication and Entertainment

_____ is particularly appealing when the human's hands or eye are otherwise occupied
A.Voice recognition
B.Sound recognition
C.Amplitude recognition
D.Frequency recognition - - - - - A.Voice recognition

Voice telephony is an efficient means of _____ with machines that can listen.
A.Mono-directional voice communication
B.Bi-directional voice communication
C.Voice recognition
D.Both bi directional and mono directional - - - - - B.Bi-directional voice communication

Without _____ IoT devices can easily lead to catastrophe.
A.Software
B.Management system
C.Cloud
D.Devices - - - - - B.Management system

What IoT collects?
A.Human generated data
B.Sensor data
C.Machine generated data

D.Device data - - - - - C.Machine generated data

Which requires data stream management?
A.Bigdata
B.IoT
C.Bigdata & IoT
D.Device data - - - - - B.IoT

The IoT operates at _____ scale
A.Machine
B.Human
C.Device
D.Sensor - - - - - A.Machine

Fritzing is open source, free software.
A.True
B.False - - - - - A.True

Which of these is NOT electronic equipment you can use for IoT prototyping?
A.Arduino microcontroller
B.Raspberry Pi microprocessor
C.Blackberry router
D.LED - - - - - C.Blackberry router

What does the 'things' in Internet of Things refer to?
A.Smart phones and tablets
B.Machines and vehicles that operate themselves
C.A physical object with embedded electronics - - - - - C.A physical object with embedded electronics

The IoT increases the potential for machines to make smart decisions based on collected data, and to act on them, leaving people (apart from the original programmers and those setting the parameters) out of the loop. This is called M2M. Select an example of M2M from the descriptions below.
A.A sensor on a milking cow indicates that she is moving in a way that suggests she in on heat and will be receptive to insemination. She is placed on a watch list and the herd manager chooses to draught her out, after milking, for insemination.
B.An autonomous ambulance on an emergency call approaches an intersection and communicates with the signals to change the lights from red to green, to allow smooth passage through the intersection.
C.Sensors on a bridge detect strain in bridge joints. Areas of concern are flagged with the maintenance team who can respond to specific problems, rather than carrying out lengthy inspections. - - - - - B.An autonomous ambulance on an emergency call approaches an intersection and communicates with the signals to change the lights from red to green, to allow smooth passage through the intersection.

What protocol is good for communication of IoT devices with restricted power and low data rates over a range of a few kilometres ?
A.Bluetooth
B.Zigbee
C.LoRaWAN
D.4G
E.WiFi - - - - - C.LoRaWAN

What is the main advantage of IPv6, and why does it suit IoT?
A.IPv6 provides many more IP addresses, which increases the potential number of hosts and amount of data.
B.IPv6 is more up to date protocol with leaner mechanisms which suit modern microprocessors.
C.IPv6 is faster and can carry more data. - - - - - A.IPv6 provides many more IP addresses, which increases the potential number of hosts and amount of data.

Which of these media is currently NOT used in communicating data?
A.Wireless / electromagnetic waves
B.Hydrogen cables / electron ionisation
C.Fibre optics / pulses of light
D.Copper cables / electrical signals - - - - - B.Hydrogen cables / electron ionisation

Communication in a network is carried via a _____ ?
A.Sensor
B.Router
C.Medium
D.Device
E.Controller - - - - - C.Medium

When you upload a photo from your camera to a social media site, what kind of path is the information likely to travel?
A.End device -> Modem -> Controller -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server
B.End device -> Controller -> Modem -> Your ISP -> Networks and Routers -> social media site's server -> social media site's ISP
C.End device -> Controller -> Modem -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server
D.Controller -> Modem -> Your ISP -> Networks and Routers -> social media site's ISP -> social media site's server -> End device - - - - - C.End device -> Controller -> Modem -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server

Why will IoT put a strain on internet infrastructure?
A.The unprecedented amount of data
B.The variety of IoT protocols

C.The large number of unsecured devices connecting to the internet - - - - - A.The unprecedented amount of data

Sometimes many devices share the same set of wires. This connection mode is referred to as a _____?
A.Train
B.Bus
C.Multi-point connection - - - - - B.Bus

In a communications network, peers can send messages to:
A.Peers in the same layer only
B.Peers in any layer
C.Peers in the layers above and below only - - - - - A.Peers in the same layer only

What is another way of thinking of the DTE?
A.As a Modem
B.As a Computer
C.As a Router - - - - - B.As a Computer

In telecommunications, RS-232 is used for _____communication transmission of data.
A.serial
B.parallel - - - - - A.serial

Bluetooth uses low power radio waves in the frequency range of ...?
A.2.4 - 2.485Hz
B.2.4 - 2.485GHz
C.2.4 - 2.485MHz - - - - - B.2.4 - 2.485GHz

Bluetooth has three classes, namely:
A.Industrial, Scientific, Medical
B.Class 1, Class 2 and Class 3 (100m, 10m and 1m range)
C.I, M and R (Industrial, Mobile and Rarely used) - - - - - B.Class 1, Class 2 and Class 3 (100m, 10m and 1m range)

Bluetooth is named after:
A.The scientist who invented it, who had blue teeth
B.The company that invented it, Ericsson's founder Harald Bluetooth
C.Danish King, Harald Gormsson who promoted communication between Denmark and Norway - - - - - C.Danish King, Harald Gormsson who promoted communication between Denmark and Norway

The huge numbers of devices connected to the Internet of things have to communicate automatically, not via humans. What is this called?

A.Bot to Bot (B2B)
B.Machine to Machine (M2M)
C.InterCloud
D.Skynet - - - - - B.Machine to Machine (M2M)

Which characteristics involve the facility the thing to respond in an intelligent way to a particular situation?
A.Intelligence
B.Connectivity
C.Dynamic Nature
D.Enormous Scale - - - - - A.Intelligence

_____ empowers IoT by bringing together everyday objects.
A.Intelligence
B.Connectivity
C.Dynamic Nature
D.Enormous Scale - - - - - B.Connectivity

The collection of data is achieved with _____ changes.
A.Intelligence
B.Connectivity
C.Dynamic Nature
D.Enormous Scale - - - - - C.Dynamic Nature

The number of devices that need to be managed and that communicate with each other will be much larger.
A.Intelligence
B.Connectivity
C.Dynamic Nature
D.Enormous Scale - - - - - D.Enormous Scale

_____ a cellular network is expensive, especially with many IoT devices.
A.Signaling
B.Security
C.Bandwidth
D.Power consumption - - - - - C.Bandwidth

Communication between _____ and _____ is encrypted for security.
A.Cloud and device
B.End user and data center
C.Network and device
D.Cloud and Network - - - - - B.End user and data center

The embedded devices will form _____ network

A.ATM
B.Ethernet
C.FDDI
D.Ad-hoc - - - - - D.Ad-hoc

_____ are used to overcome the challenges of managing the resources of the IoT.
A.Clustering
B.Software agents
C.Synchronization techniques
D.Cluster, Software agent, and Synchronization techniques - - - - - D.Cluster, Software agent, and Synchronization techniques

BAN stands for _____
A.Body Area Network
B.Brain Area Network
C.Body Android Network
D.Brain Android Network - - - - - A.Body Area Network

NFC stands for _____
A.Near Fast Communication
B.Near Field Communication
C.Near Field Customer
D.Near Field Connection - - - - - B.Near Field Communication

Phones act as actuators too.
A.True
B.False - - - - - A.True

WiFi uses how much frequency?
A.2.2GHz
B.3GHz
C.3.5GHz
D.2.4GHz - - - - - D.2.4GHz

Bluetooth will transmit the data over the frequency band _____
A.2.4 to 2.7 GHz
B.2.4 to 3 GHz
C.2.4 to 2.485 GHz
D.2.4 to 2.6 GHz - - - - - C.2.4 to 2.485 GHz

Bluetooth operates at short distances.
A.True
B.False - - - - - A.True

Bluetooth will drain battery life.
A.True
B.False - - - - - A.True

What data security concerns do IoT devices pose?
A.The device being hijacked to harm another device or system
B.Because they are small and low powered, they can't carry much software including security software leaving them open to data theft or disruption
C.The devices being small and embedded into objects makes them easily vandalised or stolen - - - - - B.Because they are small and low powered, they can't carry much software including security software leaving them open to data theft or disruption

How does the addition of data due to IoT create privacy issues?
A.Systems struggle to deal with the large amount of data so data gets 'stuck outside security' waiting to be dealt with
B.Multiple data sets each stripped of identification initially can be combined as a whole and reveal identity
C.More data going through security measures inevitably means more security breakdowns and data leakage
D.IoT devices generally connect wirelessly creating additional harder to secure channels for data hijack - - - - - B.Multiple data sets each stripped of identification initially can be combined as a whole and reveal identity

Which of the following is NOT a security measure?

A.Encryption
B.Password
C.Firewall
D.Firmware - - - - - D.Firmware

How does fog computing reduce security risks?

A.It acts on IoT data closer to the source
B.It creates unclear connections that are difficult to intercept
C.It reduces the need for remote management
D.It scrambles electronic signals and encrypts all data - - - - - A.It acts on IoT data closer to the source

The resistance of a heater coil is 10 Ohms and the input voltage is 120V. What is the current?

A.12 amps
B.1,200 amps
C.0.083 amps - - - - - A.12 amps

A DC motor requires a current of 10 Amperes to operate at full speed. The battery attached supplies 12 Volts. What resistance is required in the circuit to provide exactly 10 A to the motor?

A.12 ohms
B.120 ohms
C.1.2 ohms - - - - - C.1.2 ohms

If you need to increase the current through a resistor in a circuit, what would you do?

A.Decrease the voltage applied to the resistor.
B.Increase the voltage applied to the resistor.
C.Increase the room temperature.
D.Increase the value of the resistor.
E.All of the above. - - - - - B.Increase the voltage applied to the resistor.

When current flows through a resistor, the power involved produces heat. What measures can be taken to reduce the generation of heat inside a computer?

A.Reduce the voltage from the power supply.
B.Increase the total resistive value in the circuit.
C.Increase the physical size of resistors.
D.Use capacitors on the output of the power supply.
E.All of the above. - - - - - A.Reduce the voltage from the power supply.

The combination of conditioning plus the element being controlled by the computer is called a _____ ?

A.DAC
B.Instrumentation amplifier
C.Motor
D.Actuator - - - - - D.Actuator

The combination of a transducer with its signal conditioner is called a _____ ?

A.Instrumentation Amplifier
B.Sensor
C.Thermistor
D.ADC - - - - - B.Sensor

What is the microcontroller used in Arduino UNO?

A.ATmega328p
B.ATmega2560
C.ATmega32114
D.AT91SAM3x8E - - - - - A.ATmega328p

What does p refer to in ATmega328p?

A.Production
B.Pico-Power
C.Power-Pico
D.Programmable on chip - - - - - B.Pico-Power

Arduino shields are also called as_____

A.Extra peripherals
B.Add on modules
C.Connectivity modules
D.Another Arduinos - - - - - B.Add on modules

Which is the software or a programming language used for controlling of Arduino?

A.Assembly Language
B.C Languages
C.JAVA
D.Any Language - - - - - D.Any Language

A program written with the IDE for Arduino is called _____

A.IDE source
B.Sketch
C.Cryptography
D.Source code - - - - - B.Sketch

Arduino IDE consists of 2 functions. What are they?

A.Build() and loop()
B.Setup() and build()
C.Setup() and loop()
D.Loop() and build() and setup() - - - - - C.Setup() and loop()

How many digital pins are there in the UNO board?

A.14
B.12
C.16
20 - - - - -

_____ board allows sewn into clothing.

A.UNO
B.RedBoard
C.LilyPad
D.Mega - - - - - C.LilyPad

There is efficiency gains from _____ all sorts of equipment.

A.Implementation
B.Analogous
C.Evolution
D.Digitization - - - - - D.Digitization

A provider which produces 99 percent uptime _____

A.Security issues
B.Network Issues
C.Programming issue
D.Memory issue - - - - - B.Network Issues

With physical security, the stakes are incredibly _____

A.Very high
B.Low
C.Very low
D.High - - - - - D.High

Which digit does the colour yellow denote on a resistor colour band?

A.2
B.4
C.7
D.3 - - - - - B.4

A 47 Kohm resistor would have which colours on its first three bands?

A.red, white, blue
B.yellow, violet, white
C.orange, yellow, violet
D.yellow, violet, orange - - - - - D.yellow, violet, orange

Which digit does the colour orange denote on a resistor colour band?

A.9
B.1

C.6
D.3 - - - - - D.3

A resistor's first three colour bands are red, yellow and black. What is its value?

A.240 ohms
B.24 ohms
C.32 ohms
D.420000 ohms - - - - - B.24 ohms

Which digit is represented by a blue band on a resistor?

A.4
B.8
C.6
D.9 - - - - - C.6

Which digit is represented by a black band on a resistor?

A.100
B.1
C.1000
D.0 - - - - - D.0

A resistor's first three colour bands are brown, green and red. What is its value?

A.1500 ohms
B.250 ohms
C.2000 ohms
D.510 ohms - - - - - D.510 ohms

Which colour represents the digit 6 in the resistor colour code?

A.red
B.blue
C.pink
D.green - - - - - B.blue

Which of these colours is NOT used in the resistor value colour code?

A.black
B.turquoise
C.white
D.violet - - - - - B.turquoise

A micro-controller is...

A.small CPU made of transistors and conductors of heat and sound sensor
B.portable circuits capable of making other circuits
C.small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals
D.small chip made of silver - - - - - A.small CPU made of transistors and conductors of heat and sound sensor

What does GPIO stand for?

A.General Purpose Inner Outer Propeller
B.General Purpose Interested Old People
C.General Purpose Input Output Pins
D.General Purpose Input Output Processor - - - - - C.General Purpose Input Output Pins

Before your program "code" can be sent to the board, it needs to be converted into instructions that the board understands. This process is called...

A.Stop
B.Create Sketch
C.Compile
D.Serial Monitor - - - - - C.Compile

This shows you what the IDE is currently doing and is also where error messages display if you make a mistake in typing your program. (often called a syntax error)

A.Sketch Editor
B.Text Console
C.Line Number
D.Serial Monitor - - - - - B.Text Console

This shows you what line number your cursor is on. It is useful since the compiler gives error messages with a line number.

A.Sketch Editor
B.Text Console
C.Line Number
D.Serial Monitor - - - - - C.Line Number

A function is a series of programming statements that can be called by name. Which command is called once when the program starts:

A.loop()
B.(output)

C.setup()
D.(input) - - - - - C.setup()

A function is a series of programming statements that can be called by name. Which command is called repetitively over and over again as long as the Arduino has power.

A.loop()
B.(output)
C.setup()
D.(input) - - - - - A.loop()

A function is a series of programming statements that can be called by name. Which command delays the LED by a number of milliseconds is.

A.loop()
B.delay()
C.setup()
D.stop() - - - - - B.delay()

What is this line of code: // the loop function runs over and over again forever

A.A statement
B.A single line comment
C.A function definition
D.A bowl of cereal - - - - - B.A single line comment

What is this line of code: void loop() {

A.A statement
B.A single line comment
C.Part of a function definition
D.A banana - - - - - C.Part of a function definition

Which pin has a built-in LED?

A.Pin 13
B.Pin 10
C.Pin 8
D.Pin 7 - - - - - A.Pin 13

What are two two main types of Arduino pins?

A.Digital and analog.
B.Digital and modulation.
C.Pulse and analog. - - - - - A.Digital and analog.

If you make a voltage divider circuit with R1 = 10K and R2 = 10K, and your Vin is 12V, what will be your Vout?

A.12V
B.10V
C.6V
D.5V - - - - - C.6V

How many bits are there in a byte?

A.256
B.8
C.16
D.10 - - - - - B.8

On a breadboard, where do you put a DIP package?

A.In the middle of the board
B.On the bottom side of the board
C.In the power rails
D.With the potato chips - - - - - A.In the middle of the board

What is the nominal voltage of 6 AAA batteries connected in parallel?

A.6V
B.9V
C.12V
D.1.5V - - - - - D.1.5V

This is an unsigned data type that occupies 1 byte of memory. Same as the byte datatype. It encodes numbers from 0 to 255.

A.highByte()
B.unsigned char
C.unsigned long
D.volatile - - - - - B.unsigned char

This is used to include outside libraries in your sketch. This gives the programmer access to a large group of standard C libraries (groups of pre-made functions), and also libraries written especially for Arduino.

A.#include
B.break
C.void

D.#define - - - - - A.#include

This clears (writes a 0 to) a bit of a numeric variable.

A.bitClear
B.sizeof()
C.pinMode
D.#include - - - - - A.bitClear

The void keyword is used only in function declarations. It indicates that the function is expected to return no information to the function from which it was called.

A.HIGH
B.void
C.pin
D.LOW - - - - - B.void

Sensors play a big part in the Internet of Things, collecting data from the physical world. There is a long and growing list of sensor types, but some of the more common ones are found in smart phones. Which sensor in your phone collects information on your physical activity for health apps?
A.Gyroscope
B.Magnetometer
C.Proximity sensor
D.Accelerometer - - - - - D.Accelerometer

In an industrial fan maintenance system, what physical change does Ian Howard say a sensor might detect, measure and transmit data on?
A.Vibration
B.Blade speed
C.Power
D.Wind direction - - - - - D.Wind direction

When the gate system at the dairy closes one gate and opens another to direct a cow into a particular area, what is (or what are) the actuators in play?
A.RF antennae detecting ID of cow
B.Light sensors detecting cow in gate
C.Pneumatic arms on gate mechanism
D.Movement sensor in cow's pendant - - - - - C.Pneumatic arms on gate mechanism

All of the parts of a complete IoT process need programming. But where in the following IoT process is programming needed for the system to be Internet of Things?
A.Soil sensor to microcontroller to the Cloud to microcontroller to fertilising mechanism
B.Soil sensor and Cloud and fertilising mechanism
C.Microcontroller and Cloud

D.Soil sensor and Microcontroller
E.Soil sensor and fertilising mechanism - - - - - C.Microcontroller and Cloud

Which of these sentences could be a line of programming code?
A.If temperature is more than 30 degrees C, run fan, else, run heater
B.When it gets too hot, turn the fan on otherwise keep heating the room
C.Run heater until temperature reaches 30 degrees C then cool it down - - - - - A.If temperature is more than 30 degrees C, run fan, else, run heater

In the reticulation (water irrigation) system, what type of device is the outdoor camera?
A.Sensor
B.Actuator
C.Control
D.none of the above - - - - - A.Sensor

What sort of actuator would you use to control the movement of a conveyor belt?
A.A linear actuator
B.An AC motor
C.A thermocouple
D.A water pump
E.A rubber belt - - - - - B.An AC motor

Which of the following IS NOT criteria to help select a wired communication protocol?
A.Speed
B.Number of wires per connection
C.Ability to transmit and receive information at the same time
D.Number of devices that need connecting
E.Distance to the nearest power point
F.Maximum distance between master and slaves - - - - - F.Maximum distance between master and slaves

If we intend to include a servo motor as an actuator, what feature should we include when selecting a microcontroller?
A.Analogue to Digital converter
B.Digital to Analogue converter
C.GPIO pins
D.Pulse Width Modulation pin
E.I2C pins - - - - - C.GPIO pins

In an IoT smart home system, sensors are connected to the home power outlet and are required to process some part of the collected data. What would be the best option to connect sensors to each other, as well as a central location for Internet connection, where high data rate is required?
A.Bluetooth
B.6LowPAN

C.WiFi
D.LoRa - - - - - C.WiFi

From the list below, which is the LPWAN technology?
A.LoRa
B.WiFi
C.LTE
D.6LowPAN - - - - - A.LoRa

Fill in the blank: System _____ can be a major problem, especially in badly designed closed-loop systems, as they may try to over-correct any errors which could cause the system to lose control and oscillate.
A.stability
B.scalability
C.security
D.useability
E.feedback - - - - - A.stability

One advantage of a closed loop feedback system is:
A.Simplicity of design
B.Ability to react to disturbances in the system
C.It is less stable than an open loop system
D.Depends on calibration for accuracy
E.All of the above - - - - - B.Ability to react to disturbances in the system

Fill in the blank. If we want to measure the temperature of a solution in a chemical process to within 0.1 degree Celsius, over a range of 100 degrees, our development board would need a _____ converter to meet that requirement for accuracy.
A.8 bit
B.10 bit
C.16 bit
D.32 bit - - - - - B.10 bit

_____ provide the means to create capability that reflects true awareness of the physical world and people.
A.Sensors
B.Heterogeneity
C.Security
D.Connectivity - - - - - A.Sensors

_____ in IoT as one of the key characteristics, devices have different hardware platforms and networks.
A.Sensors
B.Heterogeneity
C.Security

D.Connectivity - - - - - B.Heterogeneity

IoT devices are naturally vulnerable to _____ threats.
A.Sensors
B.Heterogeneity
C.Security
D.Connectivity - - - - - C.Security

What is the popular method of organizing wireless network topologies?
A.Software
B.Synchronization
C.Network
D.Cluster - - - - - D.Cluster

What is the role of communication protocol in IoT?
A.Smart cities
B.Cyber physical system
C.Mac layer issue
D.Managing energy - - - - - C.Mac layer issue

Which of the following is the future application of IoT?
A.Role of green IoT system
B.QoS in communication
C.Secure communication
D.Multimedia communication - - - - - A.Role of green IoT system

The object of IoT will be empowered by _____
A.Network
B.Cloud
C.Devices
D.Connectivity - - - - - C.Devices

_____ layer is the communication layer that connects the IoT devices with WAN.
A.Internet layer
B.Application layer
C.Sensor layer
D.Network layer - - - - - D.Network layer

_____ either built into smoke alarm and thermostat or in the form of small plug - in.
A.Microphones
B.Loudspeaker
C.Microphone and loudspeaker
D.Mic - - - - - A.Microphones

_____ Will reduces the cost of the devices.
A.Intuitive
B.Voice telephony
C.Voice recognition
D.Voice Integration - - - - - D.Voice Integration

How many analog pins on an Arduino Uno board?
A.5
B.6
C.7
D.8 - - - - - B.6

Which of the following function is used to set any pin in the state of HIGH/LOW ?

A.digitalRead
B.digitalWrite
C.analogWrite
D.pinMode - - - - - B.digitalWrite

What does PWM stand for?

A.Pulse Width Modulation
B.Pulse Wide Module
C.Preventive Width Modulation
D.None of the other - - - - - A.Pulse Width Modulation

Which function in the Arduino IDE is used to set any pin in output or input state?

A.digitalWrite
B.delay
C.pinMode
D.analogRead - - - - - C.pinMode

How many PWM pins are present in the Arduino UNO?

A.1
B.3
C.6
D.9 - - - - - C.6

What among the following is an example of external interrupt for the Arduino?

A.Button
B.Resistor

C.LED
D.Capacitor - - - - - A.Button

What will be the correct syntax to make a digital pin (say D2) as an output pin?

A.pinMode(2,output)
B.pinMode(2,Output)
C.pinMode(2,OUTPUT)
D.pinmode(2,OUTPUT) - - - - - C.pinMode(2,OUTPUT)

Which of the following digital pins can be used in Arduino Nano/Uno to give interrupt?

A.D2
B.D6
C.D4,D5
D.D2,D3 - - - - - D.D2,D3

What is the size of EEPROM of the Arduino UNO?

A.1 KB
B.2 KB
C.4 KB
D.8 KB - - - - - A.1 KB

Which function in the Arduino is used to start the serial communication using the COM port?

A.Serial.available()
B.Serial.begin()
C.serial.begin()
D.setup() - - - - - B.Serial.begin()

The action that will be performed using this switch case will be:switch (2): {case 1: digitalWrite(11,HIGH); case 2: analogRead(A3)}

A.D11 will become HIGH
B.Analog value of A3 will be read
C.D11 will become LOW
D.None of the other - - - - - B.Analog value of A3 will be read

While taking the input from the user in Arduino, which of these function is used in Sketch?

A.Serial.print
B.Serial.println
C.Serial.available
D.None of the other - - - - - C.Serial.available

What is the Tinkercad Circuits?

A.Its a just s software to create games
B.Tinkercad is a free online collection of software tools that help people create and simulation circuits.
C.Its a software for playing and create games.
D.None of the other - - - - - B.Tinkercad is a free online collection of software tools that help people create and simulation circuits.

How do you zoom in on Tinkercad?

A.Spacebar
B.Use the arrows on the keyboard
C.Use the scroll wheel
D.Right Click - - - - - C.Use the scroll wheel

A photoresistor is an electronic component whose electrical resistance _____ when it is exposed to light.

A.changes
B.increases
C.doesn't change - - - - - A.changes

What does this syntax mean? myservo.attach(9)

A.Connect the control wire 9 to GND pin
B.Connect the control wire for 9 seconds
C.Connect the control wire to 9 volts
D.Connect the control wire to digital pin 9 - - - - - D.Connect the control wire to digital pin 9

In remote control terms, IR stands for what?

A.indirect radio
B.infrared
C.inside remote
D.instant reception - - - - - B.infrared

Infrared remote controls use what to carry signals between the remote control and the device it controls?

A.radio waves
B.sound
C.light - - - - - C.light

Infrared signals can be used for _____.
A.(a) long-range communication
B.(b) short-range communication
C.Both (a) and (b)
D.None of the other - - - - - B.(b) short-range communication

Which sensor is LM35?

A.Pressure sensor
B.Humidity sensor
C.Temperature sensor
D.Touch sensor - - - - - C.Temperature sensor

LM35 provides _____ Volt for each degree count?

A.1
B.0.01
C.0.001
D.10 - - - - - B.0.01

What is the main purpose of the SRF05 sensor?

A.Water level sensor
B.Sound intensity sensor
C.Ranging sensor
D.Temperature sensor - - - - - C.Ranging sensor

What is the purpose of the pin named ECHO of HC-SR04 sensor?

A.Allows the ultrasonic sound wave to be sent from the sensor.
B.Provides the information that the ultrasonic sound wave is returned.
C.Allows the sensor to be fed with energy.
D.Provides the chassis connection of the sensor. - - - - - B.Provides the information that the ultrasonic sound wave is returned.

What does the AREF pin on the Arduino UNO?

A.Used to trigger a interrupt.
B.Reference voltage for analog inputs.
C.To reset the microcontroller.
D.Provides 8-bit PWM signal. - - - - - B.Reference voltage for analog inputs.

What pins can the Arduino UNO board communicate with the computer?

A.PWM pins
B.ADC pins
C.I2C pins
D.UART pins - - - - - D.UART pins

What case is called serialEvent() interrupt?

A.Serial port shuts down.
B.When data is sent from the serial port.
C.When data comes from the serial port.
D.When the voltage is applied to the Arduino. - - - - - C.When data comes from the serial port.

Each computer has its own Internet search engine.

A.True
B.False - - - - - B.False

What does CRM stand for?

A.Customer Research Management
B.Customer Relationship Management
C.Customized Research Management
D.Customer Research Metrics - - - - - B.Customer Relationship Management

How has e-commerce revolutionized business?

A.It has allowed businesses to utilize new avenues of advertising, selling, and distribution.
B.It attempts to level the playing field.
C.It transcends geographic boundaries.
D.All of the above - - - - - D.All of the above

A _____ allows customers to continue browsing after selecting each item they wish to purchase

A.Shopping Cart
B.Forms-based interface
C.SSL connection
D.Virtual memory - - - - - A.Shopping Cart

Which of the following is NOT a standard used in E-Commerce?

A.EDI
B.XML
C.SETI
D.X12 - - - - - C.SETI

Which of the following is NOT the characteristics of consumer when studying about EC Consumer Behavior Model?

A.Age
B.Gender
C.E-mail
D.Education - - - - - C.E-mail

Mechanism to protect private networks from outside attack is

A.Firewall
B.Antivirus
C.Digital signature
D.Formatting - - - - - A.Firewall

While making payment using electronic check, credit and debit cards, the server authenticates the customers and verifies with the bank that funds are adequate before purchase

A.True
B.False - - - - - A.True

A computer communication technology that provides a way to interconnect multiple computer across short distance is

A.LAN
B.WAN
C.MAN
D.Wireless network - - - - - A.LAN

DNS is

A.The distributed hierarchical naming system
B.The vertical naming system
C.The horizontal naming system
D.The client server system - - - - - C.The horizontal naming system

Which of the following is a technology constraint from the e-commerce macro-environment?

A.Propensity for consumers to purchase online.
B.Opt-in to e-mail required to avoid SPAM
C.Likelihood of fraudulent transactions
D.Taxation at source of purchase - - - - - C.Likelihood of fraudulent transactions

In E-Commerce, HTTPS is a communication protocol that uses

A.Public key encryption
B.Secret key encryption
C.Private key encryption
D.Data key encryption - - - - - A.Public key encryption

The concept of electronic cash is to execute payment by

A.Credit Card
B.ATM Card
C.Using computers over network
D.Cheque - - - - - C.Using computers over network

A chemical manufacturer has transactions that are predominantly:

A.business to consumer.
B.consumer to consumer.
C.consumer to business
D.business to business - - - - - C.consumer to business.

A B2B reverse auction is:

A.the same as a seller auction.
B.intended to reduce the price by increasing competition from suppliers.
C.always run through a B2B marketplace.
D.both the second and third answers above. - - - - - B.intended to reduce the price by increasing competition from suppliers.

A computer system that permits multiple users to run programs at same time

A.Real time system
B.Multi programming system
C.Time sharing system
D.Multi tasking system - - - - - D.Multi tasking system

The mercantile process model consists of the following phase(s):

A.The pre-purchase phase
B.Purchase consummation phase
C.Post-purchase Interaction phase
D.All of the above - - - - - D.All of the above

The most serious disadvantage of e-auctions is:

A.the risk of fraud.

B.Logistics.
C.unreliable auction software.
D.payment delays. - - - - - A.the risk of fraud.

Many companies use intermediaries or trading assistants instead of implementing e-auctions themselves for each of the following reasons EXCEPT:

A.The company name is not widely recognized.
B.To bring many more buyers to the auction.
C.To avoid tax and legal fees.
D.Costs of auction intermediaries or assistants are less than the costs of physical auctions. - - - - - C.To avoid tax and legal fees.

All of the following are potential benefits from auctions to sellers EXCEPT:

A.auctions can broaden the customer base and reduce cycle time.
B.sellers receive valuable price sensitivity information.
C.sellers are always anonymous.
D.sellers can liquidate large quantities of obsolete items very quickly. - - - - - C.sellers are always anonymous.

Select the correct answer from the choices below which is corresponding with the following statement in STRATEGIC PLANNING TOOLS" : It is a methodology that surveys external opportunities and threats and relates them to internal strengths and weaknesses.

A.SWOT analysis
B.strategy map
C.balanced scorecard
D.BCG matrix - - - - - A.SWOT analysis

A major shortcoming with authentication services is:

A.two different authenticators may come up with different opinions regarding the authenticity and description of a given item.
B.it is impossible to tell whether many items are reproductions or genuine.
C.dishonest authenticators are the primary sources of fraud on the Internet.
D.most auction sites forbid the use of authentication services. - - - - - A.two different authenticators may come up with different opinions regarding the authenticity and description of a given item.

_____ work best with many buyers and many sellers.

A.Bartering
B.Dynamic exchanges
C.Forward auctions
D.Reverse auctions - - - - - A.Bartering

The services provided through location-based m-commerce focus on key factors which include all of the following EXCEPT:

A.Geocaching, or determining the topography of an area.
B.Navigation, or plotting a route from one location to another.
C.Tracking, or monitoring the movement of a person or thing.
D.Timing, or determining the precise time at a specific location - - - - - A.Geocaching, or determining the topography of an area.

Infrastructures that "support" the wireless connection are:

A.network access points, mobile communications server switches, and cellular transmitters and receivers.
B.WAP gateways, GPS locators, and GPS satellites.
C.PDAs, smartphones, and portable computers.
D.web servers, mobile devices, and microbrowsers. - - - - - A.network access points, mobile communications server switches, and cellular transmitters and receivers.

A _____ is suitable for mobile users who need to make very short-range device-to-device wireless connections within a small space, such as a single room, and most commonly with Bluetooth.

A.personal area network
B.local area network
C.wireless area network
D.metropilitan area network - - - - - A.personal area network

You are walking near a coffee shop and suddenly your cell phone beeps with a message: "Come inside and get a free biscotti with any purchase." This is an example of:

A.permission marketing
B.location-based advertising
C.customer relationship management
D.m-commerce - - - - - C.customer relationship management

One way to share information with supply chain partners is wireless _____, which is the science of measuring physical phenomena such as temperature, volume, or an on/off condition at a remote point and transmitting the value to a distant recorder or observer

A.RFID
B.mobilization
C.osmosis
D.telemetry - - - - - D.telemetry

WiMax and 3G wireless mobile technologies offer telemedicine application opportunities that include all of the following EXCEPT:

A.Reduced threat of malpractice suits because there is no hands-on interaction between the remote physician and the patient.
B.Prescriptions can be transferred electronically to the appropriate pharmacy for a no-wait pick-up by the patient.
C.Real-time consultation between a patient in one location and a medical specialist in another.
D.Wearable heart monitors linked to a cell phone can automatically contact doctors or family members at the first sign of health problems. - - - - - A.Reduced threat of malpractice suits because there is no hands-on interaction between the remote physician and the patient.

All of the following about RFID are true EXCEPT:

A.An RFID tag can hold 20 times the amount of information a bar code can hold, and the tag can be read through cardboard, wood, and plastic at a range of up to 100 feet
B.An RFID tag includes an antenna and a chip with information about the item
C.An RFID reader contains a radio transmitter and receiver
D.An RFID tag remains inactive until radio frequency energy from the tag's radio transmitter hits its antenna, giving the chip enough power to emit a 96-bit string of information - - - - - A.An RFID tag can hold 20 times the amount of information a bar code can hold, and the tag can be read through cardboard, wood, and plastic at a range of up to 100 feet

Digital Signature is

A.Scanned Signature on Computer
B.Code number of the sender
C.Public Key Encryption
D.Software to recognize signature - - - - - D.Software to recognize signature

The method(s) of payment for online consumers are

A.Electronic cash
B.Credit/debit
C.Electronic checks
D.All of the above - - - - - D.All of the above

Which of the following statements are INCORRECT about company-centric marketplaces?

A.They are marketplaces which focus on a single company's purchasing needs or selling needs.
B.They are generally public entities owned by that company.
C.They support for buying needs (many to one, or buy-side).
D.They support for selling needs (one to many, or sell-side). - - - - - B.They are generally public entities owned by that company.

As in e-commerce, m-commerce B2C applications are concentrated in each of the following areas EXCEPT:

A.retail shopping for products and services
B.telecommunications
C.targeted advertising
D.providing content for a fee through mobile portals - - - - - B.telecommunications

All of the following about wireless wide area networks (WWAN) are true EXCEPT:

A.The single WWAN network standard insures compatibility of handsets within and between countries.
B.Most WWANs are cellular phone networks.
C.At the center of each cell is a base station transceiver or cell tower that is used to send and receive signals to and from mobile devices operating within the cell.
D.When a device is turned on, a SIM card inside the device identifies itself to the WWAN. - - - - - A.The single WWAN network standard insures compatibility of handsets within and between countries.

Which of the following is an example of edutainment?

A.Two or more students sharing music over the Internet
B.An online science fiction game whose object is to blast as many aliens as possible in a 60 second round
C.A community college providing an online college course on digital media
D.An online game that uses colorful characters to teach young children about numbers - - - - - D.An online game that uses colorful characters to teach young children about numbers

Which of the following statements about blogs is not true?

A.A blog is a personal Web site, open to the public, in which the owner expresses his or her feelings or opinions.
B.Blogs became very popular after the September 11, 2001 terrorist attacks when people were looking for as many sources of information as possible and for personal connections to the tragedy.
C.Blogs are limited to one-way communication.
D.The most common types of blogs are professional blogs. - - - - - C.Blogs are limited to one-way communication.

P2P systems have all of the following key characteristics EXCEPT:

A.They provide for real-time access to other users through techniques such as instant messaging and multichannel collaboration applications.
B.The users' computers can act as both clients and servers.
C.The overall system is well integrated, but lacks tools for easy creation of content or for adding functionalities.

D.They support cross-networking protocols such as SOAP or XML-RPC, which enables a program on one computer to execute a program on a server computer. - - - - - C.The overall system is well integrated, but lacks tools for easy creation of content or for adding functionalities.

More and more people are willing to pay for digital music, as shown by the success of _____.

A.Napster
B.Kazaa
C.Apple's iTunes
D.P2P - - - - - C.Apple's iTunes

All of the following are examples of e-government EXCEPT:

A.a company sells army and navy surplus supplies at auction over the Internet.
B.a contractor submits an application for a building permit using a city hall Web site.
C.an unemployed worker consults a Web site operated by the state employment department to learn about job openings in his city.
D.a state purchasing officer places an online order for office supplies from an e-catalog sent to her by a national office supply store. - - - - - A.a company sells army and navy surplus supplies at auction over the Internet.

A(n) _____ is a computer system capable of integrating, storing, editing, analyzing, sharing, and displaying spatial information.

A.geographical information system
B.global positioning system
C.l-commerce system
D.on-star system - - - - - A.geographical information system

Which of the following statements about blogs is not true?

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The tasks of KM include each of the following EXCEPT:

A.creating knowledge repositories where knowledge can be stored and retrieved easily
B.enhancing a knowledge environment in order to conduct more effective knowledge creation, transfer, and use
C.restricting knowledge access to prevent its transfer between individuals
D.managing knowledge as an asset so as to increase the effective use of knowledge assets over time - - - - - C.restricting knowledge access to prevent its transfer between individuals

_____ involves using various computer-based tools and techniques to analyze transaction data and generate new ideas

A.Knowledge creation
B.Knowledge capture
C.Knowledge classification
D.Knowledge management - - - - - A.Knowledge creation

Most universities use e-learning:

A.exclusively in reaching students who couldn't otherwise attend classes.
B.only when forced by administrators to use it as a way to recruit distant students or reduce costs.
C.as a total replacement for traditional classrooms.
D.as a supplementary channel to traditional classrooms. - - - - - D.as a supplementary channel to traditional classrooms.

One initiative underway that could lead to widespread support for the introduction of RFID is the _____, which identifies the manufacturer, producer, version, and serial number of each item and does not require line-of-sight contact to be read.

A.Electronic Product Code
B.Universal Product Code
C.Smart Product Network
D.Sensor Network - - - - - A.Electronic Product Code

Wal-Mart and Levi Strauss collaborate on demand forecasting in order to optimize the flow of materials along the supply chain. This is an example of:

A.reducing design cycle time
B.APS (Advanced Planning and Scheduling)
C.CPFR (Collaborative Planning, Forecasting and Replenishment)
D.reducing product development time - - - - - C.CPFR (Collaborative Planning, Forecasting and Replenishment)

A major block in the widespread implementation of collaborative commerce is:

A.the theory of collaborative commerce hasn't been proven effective in real-world applications.
B.the technology needed isn't available.
C.collaborative commerce is extremely expensive.
D.the lack of universally accepted standards. - - - - - D.the lack of universally accepted standards.

When you have a potential IoT idea you want to develop properly, what must you first define?

A.Its Unique Value Proposition
B.Problem it sets out to solve
C.Route to market
D.How it will work - - - - - B.Problem it sets out to solve

What is used to uniquely identify devices connected to the Internet?

A.gateway address
B.IP address
C.device name
D.URL - - - - - B.IP address

What data security concerns do IoT devices pose?

A.The device being hijacked to harm another device or system
B.Because they are small and low powered, they can't carry much software including security software leaving them open to data theft or disruption
C.The devices being small and embedded into objects makes them easily vandalised or stolen - - - - - B.Because they are small and low powered, they can't carry much software including security software leaving them open to data theft or disruption

IoT gateway is:

A. Physical device

B. Software program

C. Raspberry Pi

D. All of the above - - - - - D

(True or False)

Gateways can be configured to perform pre-processing of the collected data from thousands of sensors locally before transmitting it to the next stage.

A. True

B. False - - - - - A

IoT gateways perform several critical functions such as: (Which one is wrong).

A. Device connectivity

B. Protocol translation

C. Improving networks

D.Data filtering and processing, security - - - - - C

An IoT gateway device bridges the communication gap between: (Which one is wrong).

A. end users

B. IoT devices

C. Sensors

D. cloud - - - - - A

Before purchasing one gateway device you should consider: (Which one is wrong).

A. Network Security

B. Uptime

C. Power

D. Downtime - - - - - B

Which one isn't key core principles of security for IoT gateway.

A. Strategy

B. Confidentiality

C. integrity

D. authentication - - - - - A

Which device is often to be attacked in IoT system.

A. Sensor

B.Actuator

C. Gateway

D. Cloud Server - - - - - C

The maximum number of IPv4 address is:

A. 2^32

B. 2^64

C. 2^128

D. 2^256 - - - - - A

The maximum number of IPv6 address is:

A. 2^32

B. 2^64

C. 2^128

D. 2^256 - - - - - C

How many byte an IPv4 address has:

A. 32

B. 4

C. 16

D. 64 - - - - - B

Which of the following IPv4 address is in correct format.

A. 172.16.400.3

B. 172.a4.400.3

C. 172.16.286.3

D. None of the above - - - - - D

The benefits of IPv6 are (which one is wrong).

A. more private address collisions

B. Auto-configuration

C. Flexible options and extensions

D. No more NAT (Network Address Translation) - - - - - A

Which of the following IP address is wrong?

A. 43.126.38.91

B. 126.133.254.1

C. 22.131.256.3

D. 222.222.222.222 - - - - - C

The protocol for Internet is:

A. TCP/IP

B. ZigBee

C. Wi-Fa

D. Bluetooth - - - - - A

An automatic telephone switch has:

A. Memory

B. Service logic

C. Controller

D. All of the above - - - - - D

Are VPNs legal?

A. Yes in all countries

B. Not at all

C. Yes In some countries

D. Needs permission In the USA - - - - - C

What you should considered more when you are buying VPN:

A. Speed, privacy and security

B. Cost

C. Security

D. Free trials and money back guarantees, - - - - - A

It is safe to use public Wi-Fi hotspots if you are connected to

A. Internet server

B. ISP

C. VPN provider

D. All of the above - - - - - A

Which one is wrong for cloud and IoT cloud?

A. The cloud is just a metaphor for the Internet

B. The cloud is a Secure Internet provider

C. Cloud integrates billions of devices, sensors, gateways, protocols and data storage

D. IoT cloud is a sophisticated high performance network of servers - - - - - B

Which one is wrong for cloud and IoT cloud?

A. IoT cloud covers all things, objects, people and animals

B. Internet clouds covers all computers, mobiles, other peripherals and people

C. All countries must use one IoT Network

D. No difference between IT cloud and IoT cloud

E. Cloud computing and Internet of Things (IoT) are two very different technologies. - - - - - D

What are not the major components of Internet of Things?

A. Cloud

B. ISP

C. User Interface

D. Analytics - - - - - B

IoT Networks must be standard, because:

A. Different devices are manufactured by different companies!

B. Of security

C. All countries must use one IoT Network

D. None of the above - - - - - A

Which one is NOT an example of user interface?

A. Smartphone

B. www - web pages

C. Gateway

D. Your PC - - - - - C

For sending signals via radio stations channels, you should either:

A. Increase Power Energy of radio station or Decrease Bandwidth!

B. Increase Power Energy of radio station and
Increase Bandwidth!

C. Decrease Power Energy of radio station and Decrease Bandwidth!

D. Decrease Power Energy of radio station or Increase Bandwidth! - - - - - A

Morse communication sends characters less than:

A. 4K bit/second

B. 100 bit/second

C. 20 bit/second

D. 1K bit/second - - - - - C

Which one is wrong about Bandwidth and Range?

A. NFC has Low BW and Low Range

B. Bluetooth has Low BW and Low Range

C. Lora has Low BW and Low Range

D. Mobile 4G/LTE has Low BW and Low Range - - - - - D

The four important layers in IoT Ecosystems are:

A. sensor layer

B. network layer

C. platform layer

D. application layer

E. all of the above - - - - - E

What are the major components of the Internet of Things:

A. Things/devices

B. gateway

C. cloud

D. analytics

E. user interface

F. all of the above - - - - - F

What is the difference b/w Normal Device and IoT Devices?

A. Connected devices is about connecting and communicating b/w devices

B. However, IoT goes beyond to include people, things, and software systems

C. A and B - - - - - C

Types of networks include:

A. PAN

B. LAN

C. MAN

D. WAN

E. all of the above - - - - - E

Some examples of wireless technology are:

A. Cordless phone

B. GPS units

C. Wireless computer parts/satellite tv

D. Zigbee, cellular, wireless networking, LoRa, LiFi,Wifi, BT

E all of the above - - - - - E

NFC allows a short range of less than:

A. 20 cm

B. More than 20 cm

C. less than 20 mm

D. more than 20 mm - - - - - A

Only veryy few cell phones support NFS as it has:

A. Low transmission capacity

B. High transmission capacity

C. Medium transmission
capacity

D. Non transmission capacityy - - - - - A

The wireless communication tech not belong in the home area network is:

A. RFID

B. NFC

C. Wi-Fi

D. LoRa - - - - - D

In IoT networking, we need the WAN because:

A. We want to communicate with IoT devices everywhere.

B. We want to communicate with ppl everywhere

C. We want to communicate with high performance apps

D. we want to communicate with high security - - - - - A

Radio stations, for sending signals far from stations using:

A. High power Energy (Kilowatt)

B. High Power Energy (Megawatt)

C. High Frequency (Kilo Hertz)

D. High Frequency (Mega Hertz) - - - - - A

IoT Network's need:

A. To use low power energy

B. To use high power energy

C. to send signals not far from transmitter

D. a and b are correct - - - - - D

In IoT networks we are looking for:

A. sending signals far, using low power energy

B. sending signals near using low power energy

C. sending signals far, using high power energy

D. sending signals near, using high power energy - - - - - A

The correct definition for bandwidth is:

A. capacity of channel

B. the range of frequencies within a given band, in
particular that used for transmitting a signal

C. Rate at which electronic signals can travel thru a medium such as wire, cable, or channel.

D. all the above - - - - - D

For sending signals via radio stations channels, you should either:

A. increase power energy of radio station or decrease bandwidth

B. decrease power energy of radio station or decrease bandwidth

C. increase power energy of radio station or increase bandwidth

D. decrease power energy of radio station or increase bandwidth - - - - - A

Bandwidth may be thought of as the width of the 'pipe' through which data travels:

A. Greater the width, larger the amount of data can flow through it.

B. Smaller the width, larger the amount of data can flow through it.

C. Greater the width, smaller the amount of data can flow through it.

D. smaller the width, larger the amount of data can flow through it. - - - - - A

Morse communications sends characters less than:

A. 4k bit/second

B. 100 bit/second

C. 20 bit/second

D. 1k bit /second - - - - - C

About the bandwidth and range of NFC, which one is correct?

A. low BW and low range

B. high BW and low range

C. low BW and high range

D. high BW and high range - - - - - A

Bluetooth is used:

A. for small devices low BW and small battery

B. for small devices high BW and small battery

C. for small devices low BW and big battery

D. for large devices low BW and small battery - - - - - A

Which one is correct for LoRa technology?:

A. Low BW but long range (no limit by physics, limited by human)

B. High BW but long range (no limit by physics, limited by human)

C. Low BW but long range (no limit by physics and by human)

D. High BW but long range (no limit by physics and by human) - - - - - A

Which of the following technology is closer to the standard of mobile technology?

A. LoRa

B. NSF

C. RFID

D. Bluetooth - - - - - A

Which one related to bandwidth and range, is wrong?

A. NFC has low BW and low range

B. Bluetooth has lowBW and low range

C. LoRa has low BW and low range

D. Mobile 4G/LTE has low BW and Low Range - - - - - D

Most modern smart devices and sensors can be connected to low power wireless networks like WiFi, ZigBee, Bluetooth, Z-wave, LoRaWan and each of these wireless technologies has its own pros and cons in terms of:

A. Power

B. Data transfer rate

C. Overall efficiency

D. All of the above - - - - - D

In the area of IoT developments, researchers are looking for:

A. Low power, low cost wireless transmitting devices

B. Long battery life

C. Efficiency of battery

D. All of the above - - - - - D

In order to achieve intelligent D2D communication, devices require:

A. intelligent routing protocols

B. intelligent routing internet

C. intelligent routing gateway

D. intelligent routing routers - - - - - A

ZigBee is an IEEE 802.15.4-based spec for a squire of high level comm protocols used to create PANs w/ small, low-power digital radios, such as home automation, medical device data collection, and other low-power low-bandwidth needs, designed for small scale projects which need wireless connection

A. True

B. False - - - - - A

ZigBee is:

A. A low power

B. Low data rate

C. Close proximity

D. All of the above - - - - - D

Protocol IEEE 802.11 is:

A. a set of media access controls(MACs)

B. a set of physical layers

C. Specifications for implementing WLAN computer communication in the 900 MHz and 2.4,3.6, 5, and 60 GHz frequency bands.

D. The standard and amendments provide the basis for wireless network products using WiFi brand

E. all of the above - - - - - E

Wi-Fa is a technology for wireless local area networking with devices based on:

A. IEEE 802.11 standards

B. Wi-Fi using radio waves

C. Wi-Fa providing wireless high speed intternet

D. Wi-Fi providing network connections

E. all of the above - - - - - E

Which one is correct in terms of Wi-Fi:

A. Wireless Fidelity

B. Wi-Fi is simple a trademarked phrase that means: IEEE 802.11x

C. Wi-Fi is wired technology

D. Wi-Fi is useful for WAN network - - - - - B

What is used to provide IoT sensors access to the network? - - - - - A microcontroller

What limits the type of different objects that can become intelligent sensors on the internet of things - - - - - Doorbells, garage doors, smartwwtvhes

What devices provides auto discovery services for smart devices that are connected to the network - - - - - The home gateway

What are two requirements to connect a smart device to a home wireless network - - - - - An IP address and an SSID

What are two things that all digital devices need in order to work? - - - - - Data & programing

What is the purpose of packet tracer? - - - - - To simulate and visualize one or more networks

What is the largest network in existence? - - - - - The internet

What type of network is the connection between a Bluetooth headset and a vehicle? - - - - - PAN

Which type of network consists of wired computers in a college classroom? - - - - - LAN

What is an open source physical computing platform that can take input from a variety of switches or sensors to control physical objects? - - - - - Arduino

Which technology is used as a visual programming tool to create a program by connecting colored blocks - - - - - Blocky

Which two skills help with IoT prototyping? - - - - - Programing, design

Which describes global variables in programming languages? - - - - - Anywhere in a program it can be used

What are two characteristics of the Python programming language? - - - - - Easy to read code & it runs without conversion to machine learning

Change will have to occur in the corporate network in order to prepare for the Internet of things. Which type of testing would a company do to demonstrate the benefits of networking a new "thing" that was not on the network before - - - - - Prototyping

What are three attributes of data that would indicate that it may be big data - - - - - Variety, volume, velocity

What are three benefits of cloud computing - - - - - It eliminates or reduces the need for onsite maintenance and management

What is the purpose of data analytics - - - - - To gain insights from data

How was data that has been collected through sources such as webpages, audio, or tweets categorized? - - - - - Unstructured

True or false? Comma-separated values (CSV), JSON and XML are all tools that can be used to manipulate structured data - - - - - True

Mined data can be visualized through the use of charts. What are the criteria that can be used to determine the best chart selection. - - - - - Number of variables shown
Items requiring comparison.

What are two features of automation? - - - - - A process that is self driven & process that might eliminate human intervention

Which technology has the intelligence that is demonstrated by machine in a way that mimics human cognitive functions? - - - - - AL

Which technology is a subset of AL that uses statistical technique to enable computers to "learn" from collected data - - - - - ML (machine learning)

What is a key feature of the assurance element of the intent-based networking model? - - - - - End to end Verification of network

Which security best practices involves defining company rules, job duties and expectations - - - - - Developing a security policy

What are two areas of physical security which - - - - - Outside perimeter security & inside perimeter security

A company requires using a secure encrypted Internet connection when connecting to the corporate network from outside the company. Which technology should be used when employees travel and use a laptop - - - - - VPN

Which character is used within a search engine to gather data efficiency by placing the character before and after the name of the particular person - - - - - Quotation marks

Which two type of institutions do malicious web pages often look like - - - - - Bank website & financial institution

What are some examples of data types that would be classified as personally identifiable information (PII) - - - - - Social security number, email address, bank account number, fingerprint

True or false? With artificial intelligence, smart devices can modify processes and settings on the fly in responses to changes on the network - - - - - True

What is the core components of intent-based networking? - - - - - Artificial intelligence

FOR - - - - - Repeat the execution of a specific block of code for a specific number of times

While - - - - - Execute A block of code while condition is true

IF THEN - - - - - Allow the code to make decisions

fog computing - - - - - An architecture that utilizes edge devices for data pre-processing and storage

Cloud services - - - - - A collection of data centers or connected servers that provide anywhere anytime access to data and applications

Distributed processing - - - - - Breaks large volumes of data into smaller pieces which are processed by computers in different locations

Hadoop - - - - - A comprehensive ecosystem of open source software for big data management

In an industrial fan maintenance system, what physical change does Ian Howard say a sensor might detect, measure and transmit data on?

A. Vibration

B. Blade speed

C. Power

D. Wind direction - - - - - A. Vibration

Which word or phrase most accurately sums up the main benefit of IoT technology?

A. Economies

B. Enhanced safety

C. Accuracy

D. Efficiencies

E. Energy use

F. Response time - - - - - D

What protocol is good for communication of IoT devices with restricted power and low data rates over a range of a few kilometres ?
Which of these media is currently NOT used in communicating data?
Wireless / electromagnetic waves
Hydrogen cables / electro ionisation
Fibre optics / pulses of light
Copper cables / electrical signals

A. Bluetooth

B. Zigbee

C. LoRaWAN

D. 4G

E. WiFi - - - - - C

Communication in a network is carried via a _____ ?

A. Sensor

B. Router

C. Medium

D. Device

E. Controller - - - - - C

How does the addition of data due to IoT create privacy issues?

A. Systems struggle to deal with the large amount of data so data gets 'stuck outside security' waiting to be dealt with

B. Multiple data sets each stripped of identification initially can be combined as a whole and reveal identity

C. More data going through security measures inevitably means more security breakdowns and data leakage

D. IoT devices generally connect wirelessly creating additional harder to secure channels for data hijack - - - - - B

How does fog computing reduce security risks?

A. It acts on IoT data closer to the source

B. It creates unclear connections that are difficult to intercept

C. It reduces the need for remote management

D. It scrambles electronic signals and encrypts all data - - - - - A

A vacuum cleaner has a maximum power consumption of 1000 W and is powered by 240 Volts. What is the current used?

A. 24 amps

B. 4.17 amps

C. 0.24 amps - - - - - B

If you need to increase the current through a resistor in a circuit, what would you do?

A. Decrease the voltage applied to the resistor.

B. Increase the voltage applied to the resistor.

C. Increase the room temperature.

D. Increase the value of the resistor.

E. All of the above. - - - - - B

What type of device is the door alarm? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - A

What type of device is the moisture detector? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - A

What type of device is the CPU? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - C

What type of devices are the power supplies? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - D

Sometimes many devices share the same set of wires. This connection mode is referred to as a _____? (sơ đồ)

A. Train

B. Bus

C. Multi-point connection - - - - - B

What sort of actuator would you use to control the movement of a conveyor belt?

A. A linear actuator

B. An AC motor

C. A thermocouple

D. A water pump

E. A rubber belt - - - - - B

If we intend to include a servo motor as an actuator, what feature should we include when selecting a microcontroller?

A. Analogue to Digital converter

B. Digital to Analogue converter

C. GPIO pins

D. Pulse Width Modulation pin

E. I2C pins - - - - - D

Which of the following disruptions - caused by vehicles becoming fully autonomous - were the people surveyed most worried about?

A. Reduced private ownership of cars.

B. Less traffic lights on roads.

C. Reduced number of driving jobs.

D. Less space needed for parking.

E. Reduced vehicle emissions. - - - - - A

Which of the following is one of the ways IoT monitoring of dairy cows improves dairy farming?

A. The system tells you when cows are ready for milking, saving time spent on monitoring the herd.

B. The system can sound alarms when cows roam into neighbouring paddocks.

C. The system notices the cows that are unwell, so they are treated quicker, which speeds up recovery time.

D. The system results in more milk from the cows' udders for each milking. - - - - - C

What does the 'things' in Internet of Things refer to?

A. Smart phones and tablets.

B. Machines and vehicles that operate themselves

C. A physical object with embedded electronics - - - - - C

The IoT increases the potential for machines to make smart decisions based on collected data, and to act on them, leaving people (apart from the original programmers and those setting the parameters) out of the loop. This is called M2M. Select an example of M2M from the descriptions below.

A. A sensor on a milking cow indicates that she is moving in a way that suggests she in on heat and will be receptive to insemination. She is placed on a watch list and the herd manager chooses to draught her out, after milking, for insemination.

B. An autonomous ambulance on an emergency call approaches an intersection and communicates with the signals to change the lights from red to green, to allow smooth passage through the intersection.

C. Sensors on a bridge detect strain in bridge joints. Areas of concern are flagged with the maintenance team who can respond to specific problems, rather than carrying out lengthy inspections. - - - - - B

What is the main advantage of IPv6, and why does it suit IoT?

A. IPv6 provides many more IP addresses, which increases the potential number of hosts and amount of data.

B. IPv6 is more up to date protocol with leaner mechanisms which suit modern microprocessors.

C. IPv6 is faster and can carry more data. - - - - - A

Which of these sentences could be a line of programming code?

A. If temperature is more than 30 degrees C, run fan, else, run heater

B. When it gets too hot, turn the fan on otherwise keep heating the room

C. Run heater until temperature reaches 30 degrees C then cool it down - - - - - A

Why will IoT put a strain on internet infrastructure?

A. The unprecedented amount of data

B. The variety of IoT protocols

C. The large number of unsecured devices connecting to the internet - - - - - A

Which of the following is NOT a security measure?

A. Encryption

B. Password

C. Firewall

D. Firmware - - - - - D

A DC motor requires a current of 10 Amperes to operate at full speed. The battery attached supplies 12 Volts. What resistance is required in the circuit to provide exactly 10 A to the motor?

A. 12 ohms

B. 120 ohms

C. 1.2 ohms - - - - - C

What type of device is the water valve? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - B

In a communications network, peers can send messages to: (sơ đồ)

A. Peers in the same layer only

B. Peers in any layer

C. Peers in the layers above and below only - - - - - A

How can IoT help combat climate change?

A. Smart devices working to reduce energy use.

B. Prevention of methane release from cows.

C. Free internet in cities to help people operate in the city more easily.

D. Predictive maintenance of wind turbines, preventing burn out. - - - - - A

Smart cities use the Internet of Things to improve the quality of citizens' lives. True or False?

A. True

B. False - - - - - A

Sensors play a big part in the Internet of Things, collecting data from the physical world. There is a long and growing list of sensor types, but some of the more common ones are found in smart phones. Which sensor in your phone collects information on your physical activity for health apps?

A. Gyroscope

B. Magnetometer

C. Proximity sensor

D. Accelerometer - - - - - D

When the gate system at the dairy closes one gate and opens another to direct a cow into a particular area, what is (or what are) the actuators in play?

A. RF antennae detecting ID of cow

B. Light sensors detecting cow in gate

C. Pneumatic arms on gate mechanism

D. Movement sensor in cow's pendant - - - - - C

Which of these media is currently NOT used in communicating data?

A. Wireless / electromagnetic waves

B. Hydrogen cables / electron ionisation

C. Fibre optics / pulses of light

D. Copper cables / electrical signals - - - - - B

When you upload a photo from your camera to a social media site, what kind of path is the information likely to travel?

A. End device -> Modem -> Controller -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server

B. End device -> Controller -> Modem -> Your ISP -> Networks and Routers -> social media site's server -> social media site's ISP

C. End device -> Controller -> Modem -> Your ISP -> Networks and Routers-> social media site's ISP -> social media site's server

D. Controller -> Modem -> Your ISP -> Networks and Routers -> social media site's ISP -> social media site's server -> End device - - - - - C

All of the parts of a complete IoT process need programming. But where in the following IoT process is programming needed for the system to be Internet of Things?

A. Soil sensor to microcontroller to the Cloud to microcontroller to fertilising mechanism

B. Soil sensor and Cloud and fertilising mechanism

C. Microcontroller and Cloud

D. Soil sensor and Microcontroller

E. Soil sensor and fertilising mechanism - - - - - C

What are the descriptors for Big Data? (as coined by IBM)

A. Speed, True, Diversity, Amount

B. Vast, Velocity, Variance, Verified

C. Volume, Velocity, Variety, Veracity - - - - - C

Which of the following functions does NOT apply to a typical data centre's services?

A. Data storage

B. Data management

C. Data analysis

D. Data security

E. Data generation - - - - - E

What data security concerns do IoT devices pose?

A. The device being hijacked to harm another device or system

B. Because they are small and low powered, they can't carry much software including security software leaving them open to data theft or disruption

C. The devices being small and embedded into objects makes them easily vandalised or stolen - - - - - B

The resistance of a heater coil is 10 Ohms and the input voltage is 120V. What is the current?

A. 12 amps

B. 1,200 amps

C. 0.083 amps - - - - - A

When current flows through a resistor, the power involved produces heat. What measures can be taken to reduce the generation of heat inside a computer?

A. Reduce the voltage from the power supply.

B. Increase the total resistive value in the circuit.

C. Increase the physical size of resistors.

D. Use capacitors on the output of the power supply.

E. All of the above. - - - - - A

The combination of a transducer with its signal conditioner is called a _____ ?

A. Instrumentation Amplifier

B. Sensor

C. Thermistor

D. ADC - - - - - B

The combination of conditioning plus the element being controlled by the computer is called a _____ ?

A. DAC

B. Instrumentation amplifier

C. Motor

D. Actuator - - - - - D

In the system above, what type of device is the outdoor camera? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - A

What type of device is the 100K resistor? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - D

What type of device is the garden light? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - B

What type of device is the internet? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - D

What type of device is the rain detector? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - A

What type of devices are the relays? (sơ đồ)

A. Sensor

B. Actuator

C. Control

D. None of the above - - - - - B

What is another way of thinking of the DTE? (sơ đồ)

A. As a Modem

B. As a Computer

C. As a Router - - - - - B

Which of the following IS NOT criteria to help select a wired communication protocol?

A. Speed

B. Number of wires per connection

C. Ability to transmit and receive information at the same time

D. Number of devices that need connecting

E. Distance to the nearest power point

F. Maximum distance between master and slaves - - - - - F

Bluetooth uses low power radio waves in the frequency range of ...?

A. 2.4 - 2.485Hz

B. 2.4 - 2.485GHz

C. 2.4 - 2.485MHz - - - - - B

Bluetooth has three classes, namely:

A. Industrial, Scientific, Medical

B. Class 1, Class 2 and Class 3 (100m, 10m and 1m range)

C. I, M and R (Industrial, Mobile and Rarely used) - - - - - B

Bluetooth is named after:

A. The scientist who invented it, who had blue teeth

B. The company that invented it, Ericsson's founder Harald Bluetooth

C. Danish King, Harald Gormsson who promoted communication between Denmark and Norway - - - - - C

In an IoT smart home system, sensors are connected to the home power outlet and are required to process some part of the collected data. What would be the best option to connect sensors to each other, as well as a central location for Internet connection, where high data rate is required?

A. Bluetooth

B. 6LowPAN

C. WiFi

D. LoRa - - - - - C

Fill in the blank: System _____ can be a major problem, especially in badly designed closed-loop systems, as they may try to over-correct any errors which could cause the system to lose control and oscillate.

A. stability

B. scalability

C. security

D. useability

E. feedback - - - - - A

Which terminology deals with the excitation or stimulus applied to a system from an external source, for the generation of an output?

A. Input signal

B. Output signal

C. Error signal

D. Analogue signal

E. Feedback signal - - - - - A

One advantage of a closed loop feedback system is:

A. Simplicity of design

B. Ability to react to disturbances in the system

C. It is less stable than an open loop system

D. Depends on calibration for accuracy

E. All of the above - - - - - B

Bit resolution
Fill in the blank. If we want to measure the temperature of a solution in a chemical process to within 0.1 degree Celsius, over a range of 100 degrees, our development board would need a _____ converter to meet that requirement for accuracy.

A. 8 bit

B. 10 bit

C. 16 bit

D. 32 bit - - - - - B