**1. IoT-A reference model is a \_\_\_\_\_\_\_\_\_**

* Both scalable and secure CORRECT
* Scalable
* Neither scalable nor secure
* Secure

Explanation: IoT-A architectural reference model is a scalable and secure solution intended to guide the design of protocols, interface and algorithms necessary to scale the IoT.

**2. The number of elements in the Open IoT Architecture?**

* 3 elements
* 6 elements
* 8 elements
* 7 elements CORRECT

Explanation: The 7 main elements are : sensor middleware (X-GSN), cloud data storage, scheduler, service delivery and utility manager, request definition, request presentation, configuration and monitoring.

**3. \_\_\_\_\_\_\_\_ enables open application layer for constrained nodes.**

* RFID/NFC
* IEEE 802.15.4.LoWPAN
* IETF 6LoWPAN
* IEFT CoAP CORRECT

Explanation: IETF CoAP - open application layer specification for constrained nodes supporting HTTP and Web integration.

**4. The core element of architecture of smart city is \_\_\_\_\_\_\_\_**

* Management center
* Mobile Unified Service
* Urban Application Platform
* Integrated Information Provider CORRECT

Explanation: An IoT platform, which could serve as a generic architectural foundation for a smart city development has an Integrated Information Provider as its core element.

**5. Adheres to \_\_\_\_\_\_\_\_ approach for managing resources and support mapping to HTTP.**

* IoT
* RESTful CORRECT
* RETful
* Restful

Explanation: CoAP is an application layer protocol (IETF draft) for resource constrained devices. Adheres to RESTful approach for managing resources and support mapping to HTTP.

**6. In order to improve their competitiveness and services assurance, the \_\_\_\_\_\_\_\_ require independently funded IoT projects.**

* eGovermnent related
* Enterprise-based CORRECT
* Business oriented platform
* Company based

Explanation: In order to improve their competitiveness and services assurance, the market oriented enterprises and companies require independently funded IoT projects.

**7. IoT-A stands for \_\_\_\_\_\_\_\_**

* Internet of Things Area
* Internet of Things Architecture CORRECT
* Internet of Things Address
* Industrial of things Architecture

Explanation: The EU's Internet of Things Architecture is another example of the way in which we can solve IoT related challenges.

**8. What is the role of Sensor in smart grid architecture of IoT?**

* Security
* Collect data
* Store data CORRECT
* Manage data

Explanation: Sensors and Actuators are connected, send data when needed, secure and low power, easy to install and configure.

**9. \_\_\_\_\_\_\_\_ tags, devices, smart phones useful in identification.**

* IETF 6LoWPAN
* IEEE 802.15.4.LoWPAN
* IEFT CoAP
* RFID/NFC CORRECT

Explanation: RFID/NFC - tags, devices, smart phones useful in product / object identification and gathering associated information.

**10. IoT data scalability includes \_\_\_\_\_\_\_\_**

* Simple and fast installation
* Protocol abstraction
* Security with hardware
* Data storage CORRECT

Explanation: IoT Data Scalability:  
Data and Event processing at the edge  
Data storage at the edge  
Hierarchical clouds.

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

* 16 CORRECT
* 12
* 8
* 14

Explanation: It has lots of digital input/output pins, 14 can be used as PWM output 16 analog inputs, a USB connection, a power jack, and a reset button.

**2. General purpose memory is called as \_\_\_\_\_\_\_\_**

* ROM memory
* SRAM memory
* EPROM memory
* RAM memory CORRECT

Explanation: The general purpose memory is called as the RAM memory of the 8051 microcontroller, which is divided into 3 areas such as banks, bit-addressable area, and scratch-pad area.

**3. In LPC 2148 we require separate programmer?**

* True
* False CORRECT

Explanation: The UART boot loader eliminates the need of an additional programmer and allows you to program using serial port.

**4. We have no use of having silicon customization?**

* True
* False CORRECT

Explanation: It achieve custom design goals, such as higher clock speed, very low power consumption, instruction set extension, optimization for size, debug support, etc.

**5. What is the address range of SFRs?**

* 80h to ffh CORRECT
* 70h to 80h
* 00h to ffh
* 80h to feh

Explanation: In 8051 there certain registers which uses the RAM addresses from80h to ffh. These are called as Special Function Registers. Some of the SRFrs are I/o ports and control operations as TCON, SCON, PCON.

**6. Function of IE1 in TCON register?**

* External interrupt 1 to be triggered by a falling edge signal
* External interrupt 1 Edge flag. Not related to timer operations CORRECT
* External interrupt 1 Edge flag. Not related to timer operations
* External interrupt 0 single type control bit

Explanation: TCON register has 8 bits. 3rd bit has an IE1 register. This is an external interrupt.

**7. Which IDE is supported by LPC2148 board?**

* AVR Studio 4
* Walldorf
* Code Blocks
* Keil uVersion 4 CORRECT

Explanation: Using Real view compiler the keil uVersion 4 is used. Whereas, AVR studio 4 is used for ATmega128 microcontroller. And code block is used for c programming.

**8. Auxiliary carry is set during which condition?**

* When carry is generated at either D3 to D4 or D7
* When carry is generated from D3 to D4 CORRECT
* When carry is generated from both D3 to D4 and D7
* When carry is generated from D7

Explanation: When carry is generated from D3 to D4, it is set to 1, it is used in BCD arithmetic.

**9. What are the profiles for ARM architecture?**

* A,M
* A,R
* A,R,M CORRECT
* R,M

Explanation: ARMv7 defines 3 architecture "profiles":  
A-profile, Application profile  
R-profile, Real-time profile  
M-profile, Microcontroller profile.

**10. What is the microcontroller used in Arduino UNO?**

* ATmega32114
* ATmega2560
* ATmega328p CORRECT
* AT91SAM3x8E

**1. \_\_\_\_\_\_\_\_\_ is known for its deadbolts and doorknobs.**

* GE connected appliances
* Schlage CORRECT
* Eversense
* Nest

Explanation: Schlage is known for its deadbolts and doorknobs. It is getting ready for IoT era with two lines of smart home locks. It is a bluetooth enabled smart deadbolt that integrates with iOS devices.

**2. Common Public License is re licensed under \_\_\_\_\_\_\_\_**

* Eclipse Public License CORRECT
* Eclipse plug-in
* General Public License
* Eclipse Platform

Explanation: Eclipse was originally released under the Common Public License, but was later re-licensed under the Eclipse Public License. The Free Software Foundation has said licenses are free software licenses, but are incompatible with the GNU GPL.

**3. How many pins does temperature sensor have?**

* 5 legs
* 3 legs CORRECT
* 4 legs
* 2 legs

Explanation: The temperature sensor LM35 have 3 legs, the first leg is Vcc, you can connect this to the 3.3V. The middle leg is Vout, where the temperature is read from.

**4. which sensor is LM35?**

* Temperature sensor CORRECT
* Touch sensor
* Pressure sensor
* Humidity sensor

Explanation: LM35 is a temperature sensor which has 3 legs(Vcc, Vout, GND).

**5. How many and what are the parts that are present in the accelerometer sensor?**

* 2, piezoelectric effect and capacitor sensor CORRECT
* 2, Capacitor sensor, digital Display
* 3, piezoelectric effect, Analog display, digital display
* 1, capacitor sensor

Explanation: The accelerometer consists of many different parts and work in many ways, two of which are piezoelectric effect and the capacitor sensor. The piezoelectric effect is the most common form of accelerometer and uses microscopic crystal structures that become stressed due to accelerative forces.  
The capacitance accelerometer senses changes in capacitance between micro structures located next to the device.

**6. The workbench UI is \_\_\_\_\_\_\_\_**

* Codebase
* GNU
* IDE
* Plug-in CORRECT

Explanation: The workbench UI is contributed by one such plug-in. When you start up the workbench, you are not starting up a single Java program, You are activating a platform runtime.

**7. IBM Software Group began creating a development tool that eventually known as \_\_\_\_\_\_\_\_**

* Android Studio
* Code Blocks
* BlueJ
* Eclipse CORRECT

Explanation: IBM Software Group began creating a development tool that eventually known as Eclipse. We first built a new Java IDE with resources from Object Technology International labs, along with the broader platform to go with it.

**8. Which of the following is the professional kit?**

* A51
* CA51
* PK51 CORRECT
* PK52

Explanation: Keil development tools for the Controller Architecture supports every level of a software developer. And PK51 is a professional kit.

**9. Which sensor measure the pressure relative to atmospheric pressure?**

* Differential pressure sensor
* Vacuum pressure sensor
* Absolute pressure sensor
* Gauge pressure sensor CORRECT

Explanation: This sensor measures the pressure relative to atmospheric pressure. A tire pressure gauge is an example of gauge pressure measurement; when it indicates zero, then the pressure it is measuring is the same as the ambient pressure.

**10. The eclipse platform defines pen architecture.**

* False
* True CORRECT

**1. Two wire interface is also called as \_\_\_\_\_\_\_\_\_**

* SPI
* I2C CORRECT
* USART
* UART

Explanation: The i2c protocol also known as the two wire interface is a simple serial communication protocol that uses just pins of a microcontroller namely SCL and SDA.

**2. What is the sensing range for magnetic proximity sensors?**

* 150mm
* 100mm
* 120mm CORRECT
* 90mm

Explanation: Magnetic proximity sensors have no electrical noise effect and it can work on DC, AC, AC/DC. These types of sensors have highest sensing range upto 120mm.

**3. Which proximity sensors are used in automotive?**

* Ultrasonic Proximity Sensor CORRECT
* Magnetic Proximity Sensor
* Inductive Proximity Sensor
* Capacitive Proximity Sensor

Explanation: They are widely used in automotive such as parking sensors. Ultrasonic Proximity Sensors are used in automotive.

**4. The discrete levels available are\_\_\_\_\_\_\_\_\_**

* Levels CORRECT
* Bytes
* Sides
* Edges

Explanation: The number of discrete values available, or levels, is assumed to be power of two.

**5. \_\_\_\_\_\_\_\_\_ sensors have no electrical noise effect and it can work DC.**

* Magnetic Proximity CORRECT
* Parallel Proximity
* Capacitive Proximity
* Inductive proximity

Explanation: Magnetic proximity sensors have no electrical noise effect and it can work on DC, AC, AC/DC.

**6. What is the protocol used by USART?**

* RS232
* RS485
* RS232C CORRECT
* RS422

Explanation: RS232C is a long established standard ("c" is the current version) that describes the physical interface and protocol for relatively low speed serial data communication between computers and relates devices.

**7. Other name for data conversion is \_\_\_\_\_\_\_\_**

* Wilkinson
* Ramp compare
* Flash ADC CORRECT
* Sigma delta

Explanation: A direct conversion ADC or flash ADC has a bank of comparators sampling the input signal in parallel, each firing for their decoded voltage range.

**8. Resolution is expressed in \_\_\_\_\_\_\_\_\_\_**

* Word
* Nibble
* Bytes
* Bits CORRECT

Explanation: The values are usually stored electronically in binary form, so the resolution is usually expressed in bits.

**9. Which sensor can detect nearby objects?**

* Touch sensor
* Pressure sensor
* Humidity sensor
* Proximity sensor CORRECT

Explanation: A proximity sensor is a sensor able to detect the presence of nearby objects without any physical contact. A proximity sensor often emits an electromagnetic field or a beam of electromagnetic radiation, and looks for a change in the return signal.

**10. HDLC stands for \_\_\_\_\_\_\_\_\_\_\_**

* High level Data Link Coordinator
* High level Data Link Control CORRECT
* High level Data Level Control
* High level Data Link Commutator

**1. ICMP stands for \_\_\_\_\_\_\_\_\_\_**

* Interconnect Coordinate Message Protocol
* Internet Coordinate Message Protocol
* Interconnect Control Message Protocol
* Internet Control Message Protocol CORRECT

Explanation: The Internet Protocol is the key network layer protocol that implements the TCP/IP Protocol suites. Since IP is the protocol that provides the mechanism for delivering datagrams, between devices, it is designed to be relatively basic, and to function with few "bell and whistles".

**2. XMPP creates \_\_\_\_\_\_\_\_\_ identity.**

* email
* device CORRECT
* message
* data

Explanation: XMPP creates a device identity also called a Jabber ID. In MQTT, identities are created and managed separately in broker implementations.

**3. Does HTTP has pipelining.**

* False
* True CORRECT

Explanation: HTTP pipelining further reduces lag time, allowing clients to send multiple request before waiting for each response.

**4. IRC stands for \_\_\_\_\_\_\_\_\_\_**

* Interconnection Relay Chat
* Internet Reduce Chat
* Internet Relay Chat CORRECT
* Interconnect Reduce Chat

Explanation: The XMPP extension for multi user chat can be seen a competitor to Internet Relay Chat, although IRC is far simpler, has far fewer features, and is far widely used.

**5. What is the RAM and ROM size in CoAP?**

* 10 KiB of RAM and 250 KiB of ROM
* 250 KiB of RAM and 10 KiB of ROM
* 10 KiB of RAM and 100 KiB of ROM CORRECT
* 100 KiB of RAM and 10 KiB of ROM

Explanation: The Internet of Things will need billions of nodes, many of which will need to be inexpensive. CoAP has been designed to work on microcontrollers with as low as 10 KiB of RAM and 100 KiB of ROM (code space).

**6. Which is an open standard?**

* HTTP
* XMPP
* MQTT CORRECT
* CoAP

Explanation: IoT needs standard protocols. Two of the most promising for small devices are MQTT and CoAP. Both ate standard protocols.

**7. HTTP allows which response?**

* Coherent
* Serial
* Multiplexing CORRECT
* Binary

Explanation: HTTP allows multiplexing responses: that is sending responses in parallel. This fixes the "head-of-line blocking" problem of HTTP where only one request can be outstanding on a TCP/IP connection at a time.

**8. Does XMPP have text based communication.**

* False CORRECT
* True

Explanation: Since XML is text based, normal XMPP has a higher network overhead compared to purely binary solution. This issue is being addressed by the experimental XEP -0322.

**9. Secure digital card application uses which protocol?**

* USART
* I2C
* SPI CORRECT
* UART

Explanation: The typical applications of SPI protocol are secure digital cards and liquid crystal displays.

**10. Network layer protocol exits in \_\_\_\_\_\_\_\_\_**

* Switches
* Bridges
* Host CORRECT
* Packets

**1. To check whether the command line utility can establish proper communication the command is \_\_\_\_\_\_\_\_\_**

* iotkit - admin test
* admin - iotkit test
* iotkit-admin test CORRECT
* admin-iotkit test

Explanation: First, we will check whether the iotkit-admin command line utility can establish proper communication with Intel IoT Analytics. We just need to run the following command in the SSH terminal:  
Iotkit-admin test.

**2. The best example for interoperability at the application layer is?**

* Net
* File
* Web CORRECT
* Data

Explanation: The best example of interoperability at the application layer is web. The web made the internet successful by creating an open, simple and highly interoperabe layer where data can be exchanged between servers and consumed by applications.

**3. Do new device ID should be a globally unique identifier.**

* False
* True CORRECT

Explanation: The following command to change the device ID to a different one:iotkit-admin set-device-id new-device-id. We just need to replace new-device-id with new device id you want to set up for your devices. However, bear in mind the new device ID must be a globally unique identifier.

**4. Gateway software should be smart enough to handle \_\_\_\_\_\_\_\_\_\_\_**

* Sensors
* Message
* GPS
* Logging CORRECT

Explanation: Gateway software should be smart enough to handle system logging. It has to find the right balance between the number of log entries d=stored on the device and those sent to the data centre.

**5. Central software management server communicates with the gateway devices in which approach?**

* Server limited Bootstrap CORRECT
* Client Initiated Bootstrap
* Factory Bootstrap
* Bootstrap

Explanation: In server initiated bootstrap, the central software management server communicates with the gateway device and deploys the proper version of the software to it.

**6. Congestion control can control traffic entry into a telecommunications network, so to avoid \_\_\_\_\_\_\_\_\_**

* Congestive connection
* Congestive collapse CORRECT
* Connection collapse
* Collapse congestive

Explanation: Congestion control can control traffic entry into a telecommunications network, so to avoid Congestive collapse by attempting to avoid oversubscription of any of the processing or link capabilities of the intermediate nodes.

**7. What IoT collects?**

* Machine generated data CORRECT
* Human generated data
* Device data
* Sensor data

Explanation: IoT is aggregating and compressing massive amounts of low latency/ low duration/high volume machine generated data coming from a wide variety of sensor to support real time use cases such as operational.

**8. Drawback of Factory Bootstrap?**

* It should have many gateways
* It should not have many gateways CORRECT
* It should not have many devices
* Complex circuit can't be handled

Explanation: In the factory bootstrap approach, it doesn't scale well if your solution include a large number of the gates.

**9. VLSM stands for \_\_\_\_\_\_\_\_**

* Variable Length Surface Masking
* Version Length Subnet Masking
* Variable Length Subnet Masking CORRECT
* Version Length Surface Masking

Explanation: The class system of the address space was replaced with Classless Inter - Domain Routing in 1993. CIDR is based on variable length Subnet Masking to allow allocation and routing based on arbitrary length prefixes.

**10. Reoccurring problems can be achieved using \_\_\_\_\_\_\_\_\_\_**

* Patterns CORRECT
* Telnet
* BOOTP
* DNS

Explanation: There are commonly reoccurring problems that occur in the design and implementation of communication protocol and can be addressed by patterns from several different pattern languages: Pattern Language for Application Level Communication Protocol etc.

**1. The processing of publishing data is called as \_\_\_\_\_\_\_\_\_\_**

* Dweeting CORRECT
* Dweepy
* Yocto
* Thing

Explanation: Once we have chosen a unique for one thing, we can start publishing data, a process known as Dweeting.

**2. Fog computing works with cloud computing.**

* True CORRECT
* False

Explanation: Fog computing works with cloud computing, so the long term history of building operational telemetry and control actions can be aggregated and uploaded to the cloud.

**3. DEVICE\_Init performs what?**

* Disabling watchdog timer and enabling APB clock CORRECT
* Enabling APB clock and enabling watchdog timer
* Disabling APB clock and enabling watchdog timer
* Disabling watchdog timer and disabling APB clock

Explanation: The DEVICE\_Init routine performs the following functions:  
--> Disables the watchdog timer and enables the APB clock  
--> Determines the amount of Flash and RAM in the device  
--> Check all internal and external automatic trigger sources.

**4. Does bootstrap 4 supports Sass and flexbox.**

* False
* True CORRECT

Explanation: The version 4.0 alpha release added Sass and flexbox support.

**5. Which application feature is a world of warcraft gadget?**

* Dashzen CORRECT
* Klipfolio
* Ducksboard
* Leftronic

Explanation: Dashzen contains many gadgets. One unique feature of Dashzen is that world of Warcraft Gadget.

**6. MQTT is \_\_\_\_\_\_\_\_\_ protocol.**

* Machine to Machine
* Machine Things
* Machine to Machine and Internet of Things CORRECT
* Internet of Things

Explanation: The MQTT protocol is a machine to machine and Internet of thing connectivity protocol.

**7. \_\_\_\_\_\_\_\_\_ allows us to control electronic components.**

* RESTful API CORRECT
* MQTT
* HTTP
* CoAP API

Explanation: RESTful API that allows us to control electronic components connected to our Intel Galileo Gen 2 board through HTTP requests.

**8. Bootstrap uses what?**

* Pager component
* Root ems CORRECT
* Less
* Pixels

Explanation: Bootstrap 4 is almost rewritten from Bootstrap 3. Changes include:  
Switched from Less to Sass  
Switched from pixel to root ems.

**9. Which computing can be heavy weight and dense form of computing power?**

* Mobile Cloud computing
* Mist computing
* Fog computing
* Cloud computing CORRECT

Explanation: Cloud computing is the practice of using a network of remote servers hosted on the Internet of store, manage, and process data, rather than a local server or a personal computer. Cloud computing can be heavyweight and dense form of computing power.

**10. \_\_\_\_\_\_\_\_\_\_ is used instead of less for stylesheets.**

* Grid layout
* Hackathon
* Flexbox
* Sass CORRECT

Explanation: Sass s used instead of less for the stylesheets. Each Bootstrap component consists of an HTML structure, CSS declaration, and in some cases accompanying JavaScript code.

**1. EPP approach favours \_\_\_\_\_\_\_\_\_ data into the device.**

* UnLocking
* Locking CORRECT
* Blocking
* Unblocking

Explanation: For data protection, End Point Protection approach favour locking data into the device through full disk encryption port control, auditing and restriction of data prior to release from the device and other similar mechanisms.

**2. \_\_\_\_\_\_\_\_ Will reduces the cost of the devices.**

* Voice telephony
* Voice recognition
* Intuitive
* Voice Integration CORRECT

Explanation: Voice Integration could potentially challenge the need for a touch screen on many devices, as it reduces the cost for devices that will be dormant for majority of the time.

**3. Offloading decision depends upon \_\_\_\_\_\_\_\_\_\_ to be offloaded.**

* Critical value
* Threshold value
* Size of application CORRECT
* Dynamic value

Explanation: Offloading decision depends upon the size of application to be offloaded. It saves energy for a code compilation, if size of the code is large.

**4. \_\_\_\_\_\_\_\_\_ is concerned with management of mobile.**

* Cloud Privacy Protection
* Mobile Device Management CORRECT
* Cloud
* Endpoint Protection

Explanation: Mobile Device Management is primarily concerned with management of mobile devices. Solution often consists of configuration, network, and services management on mobile devices.

**5. \_\_\_\_\_\_\_\_\_\_ is the minimum value which an application shall exceed to be offloaded.**

* Critical value
* Threshold value CORRECT
* Dynamic value
* Static value

Explanation: Threshold value is the minimum value which an application shall exceed to be offloaded. The threshold value can be measured in terms of processing time, energy consumption and memory usage.

**6. What do we call string in python 2?**

* Unicode CORRECT
* Str
* Strs
* Unicades

Explanation: In python 2 the text string is called as str, and in python 2 it is called as unicode.

**7. WiFi uses how much frequency?**

* 3GHz
* 2.4GHz CORRECT
* 3.5GHz
* 2.2GHz

Explanation: WiFi is a local wireless technology that uses 2.4GHz ultra high frequency or 5 GHz super high frequency radio waves.

**8. \_\_\_\_\_\_\_\_\_ process has to support the definition of application topologies in various formats.**

* Management and Configuration
* Support of different Migration types
* Top-down and bottom-up
* Enrichment of Topology specification CORRECT

Explanation: Enrichment of Topology specification process has to support the definition of application topologies in various formats such as TOSCA or Blueprints and must consider non-functional aspects specified as extension of the previous formats.

**9. \_\_\_\_\_\_\_\_\_ Specifies the function that will be called when a successful connection with the PubNub cloud.**

* Callback
* Reconnect
* Connect CORRECT
* Error

Explanation: The call to this message specifies many methods declared in the MessageChannel class  
Connect: specifies the function that will be called when a successful connection with the PubNub cloud.

**10. \_\_\_\_\_\_\_\_\_ is particularly appealing when the human's hands or eye are otherwise occupied.**

* Voice recognition CORRECT
* Sound recognition
* Frequency recognition
* Amplitude recognition

Explanation: Voice recognition is particularly appealing when the human's hands or eye are otherwise occupied. For example, it may not only convenient but also a legal requirement to use verbal commands.

**1. Bluetooth will drain battery life.**

* True CORRECT
* False

Explanation: Even with limited range, early Bluetooth implementations were a big drain on battery life.

**2. HelloWeb is an example of \_\_\_\_\_\_\_\_\_\_\_\_ server.**

* SMTP
* HTTP CORRECT
* CoAP
* MQTP

Explanation: HelloWeb is an example of an HTTP server, but it does not use any sensors or actuators.

**3. Thread would be able to support \_\_\_\_\_\_\_\_\_\_ devices.**

* 256 Devices
* 300 Devices
* 125 Devices
* 250 Devices CORRECT

Explanation: Based on the current specification, thread would be able to support a network of up to 250 devices. Every house could be its own network, meaning your home could have up to 250 integrated devices interacting with you on a daily basis.

**4. \_\_\_\_\_\_\_\_\_ service retrieves the description of the registered service.**

* Service updated resources
* Update
* Get available services
* Get service CORRECT

Explanation: Get service retrieves the description of the registered service, that is, the SPARQL description in the case of the OpenIoT open source implementation.

**5. A resource with measured variable will reflect \_\_\_\_\_\_\_\_**

* Potential phenomenon
* Measured phenomenon
* Physical phenomenon CORRECT
* Resource phenomenon

Explanation: A resource with measured variable will reflect a physical phenomenon as it currently is. The resource is updated with new sensor values from time to time.

**6. Enabled customization endpoint will be enabled only during \_\_\_\_\_\_\_\_\_\_**

* True cases only CORRECT
* True and false cases
* Either True or false cases
* False cases only

Explanation: Each endpoint can be customized with properties using the following format: endpoint.[endpoint name].[property to customize].  
Enabled - if true then it can be accessed otherwise not.

**7. Global scheduler keeps the track of and control the life cycle of IoT services.**

* False
* True CORRECT

Explanation: Global scheduler keeps the track of and control the life cycle of IoT services. In particular, the lifecycle management services are supported by the scheduler.

**8. For which service the resources allocated for the services are released?**

* Register
* Unregister CORRECT
* Suspend
* Resource Discovery

Explanation: In the scope of the unregister functionality for a given IoT service, the resources allocated for the services are released.

**9. \_\_\_\_\_\_\_\_\_\_ is the brainchild of ARM.**

* WiFi
* Bluetooth
* Zigbee
* Thread CORRECT

Explanation: The brainchild of an alliance between Nest, Samsung, ARM and a few other companies is Thread. Thread aims to anticipate the needs of the Internet pf Things.

**10. Authors proposed 4 layer model named \_\_\_\_\_\_\_\_\_\_**

* Health-care
* Business-care
* K-Businesscare
* K-Healthcare CORRECT

Explanation: Authors proposed a four layer model named "k-Healthcare" which is considered a comprehensive platform for accessing patient's health data using the smartphones and applications.

**1. \_\_\_\_\_\_\_\_ in IoT as one of the key characteristics, devices have different hardware platforms and networks.**

* Sensors
* Connectivity
* Security
* Heterogeneity CORRECT

Explanation: Heterogeneity in IoT as one of the key characteristics, devices have different hardware platforms and networks. And can interact with other devices or services platforms through different networks.

**2. The toy includes \_\_\_\_\_\_\_\_**

* Microphone
* Speaker
* Microphone, camera, and speaker CORRECT
* Camera

Explanation: The toys, which include microphones, cameras, speakers and motors, have some people pointing at teddy, the super computer toy.

**3. Perception and attention are intrinsically rhythmic in nature.**

* True CORRECT
* False

Explanation: According to the study conducted by researchers from the university of Sydney and Italian universities, Perception and attention are intrinsically rhythmic in nature.

**4. RFID stands for \_\_\_\_\_\_\_\_**

* Radio Frequency Industry
* Random Frequency Identification
* Radio Flow Industry
* Radio Frequency Identification CORRECT

Explanation: In the early years of IoT, RFID (Radio Frequency Identification) and sensor technologies were the focus. The concept has grown enormously during the last decade.

**5. Informed \_\_\_\_\_\_\_\_\_ will enable machines to take autonomous action.**

* Processes
* Infrastructure
* Product CORRECT
* People

Explanation: Advanced sensors, controls, and software applications work together to obtain and share real time information as finished goods make their way down the production line. Informed product will enable machines to take autonomous action.

**6. \_\_\_\_\_\_\_\_ Provide the means to create capability that reflects true awareness of the physical world and people.**

* Heterogeneity
* Sensors CORRECT
* Connectivity
* Security

Explanation: Sensing technologies provide the means to create capability that reflects true awareness of the physical world and people in it. The sensing information is simply the analogue input from the physical world.

**7. Which possibility is the highest contributor to cost overhead for manufacturing facilities?**

* Transportation and logistics
* Plant control flow operation
* Energy management and resource optimization CORRECT
* Energy and utilities

Explanation: Energy management and resource optimization: Energy is among the highest contributor to cost overhead for manufacturing facilities.

**8. Is our technology out of sync.**

* False
* True CORRECT

Explanation: Today's technology can sometimes feel like it's out of sync with our senses as we peer at small screens, flick and pinch fingers across smooth surfaces, and read tweets "written" by programmer created bots.

**9. IAD stands for \_\_\_\_\_\_\_\_**

* Informative Assist Device
* Industrial Assist Device
* International Assist Device
* Intelligent Assist Device CORRECT

Explanation: The general motors team used the term Intelligent Assist Device as an alternative to cobot, especially in the context of industrial material handling and automotive assembly operations.

**10. The most likely culprit is \_\_\_\_\_\_\_\_**

* Things
* Network
* Device
* Internet connectivity CORRECT

Explanation: The most likely culprit is internet connectivity, leaving end users unable to access their hosted data or even perform management functions.

**1. Intel Galileo has the main feature of?**

* Support for openCV
* Intel Quart CORRECT
* Onboard real time clock
* Support PCI Express

Explanation: Intel Galileo features the Intel quart SoC X1000, the first product from the Intel Quart technology family of low power, small-core products. Intel Quart represents Intel's attempt to compete within markets such as the Internet of Things and Wearable Computing.

**2. What is the example for smart grid edge device for utility?**

* Smart Home
* Smart Car
* Smart Collage
* Smart Meters CORRECT

Explanation: Examples of Smart Grid Edge Devices for Utilities:  
Voltage and Current sensors  
Smart Inverters  
Smart Motors.

**3. Periferal Component Interconnect (PCI) Express interconnects which modules?**

* WIfi, Bluetooth, GSM cards CORRECT
* **Micro SD card**wrong
* Serial communication
* Real Time Clock

Explanation: PCI is a high speed serial computer expansion bus standard. It includes higher maximum system bus throughput, lower I/O pin count and smaller physical footprint.

**4. The IoT platforms are mainly divided into how many types**

* 3 types
* **5 types**wrong
* 4 types CORRECT
* 2 types

Explanation: The IoT platforms could be divided into four types:  
eGovermnent related  
Enterprise-based  
Company based  
Business oriented platform.

**5. API enables services portability between \_\_\_\_\_\_\_\_\_\_\_\_**

* Services
* Systems CORRECT
* Devices
* Networks

Explanation: API enables services portability between sysyems, I.e., service may be allocated to end-systems or servers, with possible relocation and replication throughout its lifecycle.

**6. Which blocks deals with performance issues?**

* SOA supervisor CORRECT
* ESB(Enterprise Service Bus)
* Service Broker
* SOA registry

Explanation: SOA supervisor is a traffic cop ensuring do not having issues. It deals with performance issues of the system so that appropriate service levels are met. If any of the services have performance problems it sends messages to the proper infrastructure to fix the issue.

**7. Galileo Gen 2 board was developed by which company?**

* Atmel
* Intel CORRECT
* Dallas
* Motorola

Explanation: Intel Galileo is the first in the line of boards based on intelx86 architecture and is designed for education communities.

**8. \_\_\_\_\_\_\_\_ resources are identified by Uniform Resource Identifiers.**

* CoAP CORRECT
* TCP/IP
* HMTP
* MQTT

Explanation: CoAP is an application layer protocol (IETF draft) for resource constrained devices. Adheres to Restful approach for managing resources and support mapping to HTTP. CoAP resources are identified by Uniform Resource Identifiers.

**9. ITS stands for \_\_\_\_\_\_\_\_\_**

* Internet Transportation Security
* Internet Travel Services
* Intelligent Transportation Services CORRECT
* Intelligent Transportation Security

Explanation: The center is linked with set of services, intelligent transportation services city fire protection and security; corporation medical services; commercial and tourism services; and tax and fees payment services.

**10. In \_\_\_\_\_\_\_\_ layer, various application platforms are built as required by the services needs of smart grid.**

* Smart Application layer CORRECT
* Smart network layer
* Perception layer
* Data layer

Explanation: In the smart application layer, various application platforms are built as required by the services needs of smart grid. The application platform as required by the services needs of smart grid.

**1. What is the operation for mode 0?**

* 8-bit auto reload mode, 8-bit auto reload time/counter; THx holds a value which is to be reloaded into TLx each time it overflows
* 16-bit timer mode, 16-bit timer/counter THx and TLx are cascaded, no prescalar
* 13-bit timer mode, 8-bit timer/counter THx and TLx as 5-bit prescalar CORRECT
* Spilt timer mode

Explanation: Mode 0 is exactly same like mode 1 except that it is a 13-bit timer instead of 16-bit. The 13-bit counter can hold values between 0000 to 1FFH in Th-Tl.

**2. The ARM7TDMI-S processor has \_\_\_\_\_\_\_\_\_\_ types of memory cycle.**

* 5
* 4 CORRECT
* 2
* 3

Explanation: The ARM7TDMI-S processor has 4 types of memory cycle: Non sequential cycle, Sequential cycle, cp processor register transfer cycle, internal cycle.

**3. What are t, d, m, I stands for in ARM7TDMI?**

* Thumb, Debug, Multiplier, ICE
* Timer, Debug, Modulation, IS
* Thumb, Debug, Multiplier, ICE CORRECT
* Timer, Debug, Multiplex, ICE

Explanation: The ARM7TDMI(ARM7 + 16 bit Thumb + JTAG Debug + fast Multiplier + enhanced ICE) processor implements the ARM4 instruction set.

**4. What is the instruction set used by ARM7?**

* 64-bit instruction set
* 16-bit instruction set CORRECT
* 8-bit instruction set
* 32-bit instruction set

Explanation: ARM introduced the Thumb 16-bit instruction set providing improved code density compared to previous designs. The most widely used ARM7 designs implement the ARMv4T architecture, but some implement ARM3 or ARMv5TEJ.

**5. What is the address range of SFRs?**

* 70h to 80h
* 00h to ffh
* 80h to feh
* 80h to ffh CORRECT

Explanation: In 8051 there certain registers which uses the RAM addresses from80h to ffh. These are called as Special Function Registers. Some of the SRFrs are I/o ports and control operations as TCON, SCON, PCON.

**6. LPC 2148 pro development board has \_\_\_\_\_\_\_\_\_ on chip memory.**

* 500k
* 425k
* 625k
* 512k CORRECT

Explanation: LPC 2148 Pro Development Board is a powerful development platform based on LPC2148 ARM7TDMI micro controller with 512k on-chip memory.

**7. A program written with the IDE for Arduino is called \_\_\_\_\_\_\_\_\_**

* Cryptography
* Source code
* Sketch CORRECT
* IDE source

Explanation: Sketches are saved on the development computer as text files with the file extension .ino. Arduino software (IDE) pre-1.0 saved sketches with the extension file .pde.

**8. How many digital pins are there on the UNO board?**

* 20
* 16
* 14 CORRECT
* 12

Explanation: It has 14 digital pins input/output pins of which 6 can be used as PWM output, 6 analog inputs, a USB connection, a power jack, a reset button and more.

**9. External Access is used to permit \_\_\_\_\_\_\_\_\_\_\_\_**

* Power supply
* Memory interfacing CORRECT
* ALE
* Peripherals

Explanation: External Access input is employed to permit or prohibit outer memory interfacing. If there is no outer memory needed, this pin is dragged by linking it to Vcc.

**10. How many processors are used in the Instruction pipelining?**

* One CORRECT
* Three
* Two
* Four

Explanation: Pipelining is a technique for implementing instruction level parallelism within a single processor. Pipelining attempts to keep every part of the processor busy with some instructions, by dividing incoming instructions into the series of sequential steps.

**1. Monnit temperature sensor is used for what?**

* Temperature sensor
* Accurate results CORRECT
* Pressure sensor
* To measure the temperature at high degree

Explanation: Monnit wireless temperature sensor use a thermistor to accurately measure temperature. These sensors are perfect for monitoring ambient temperatures around the sensors physical location.

**2. \_\_\_\_\_\_\_\_ sensor is used for tracking rotation or twist.**

* Gyroscope CORRECT
* Proximity
* Pressure
* Temperature

Explanation: Accelerometers in mobile phones are used to detect the orientation of the phone. The gyroscope adds an additional dimension to the information supplied by the accelerometer by tracking rotation or twist.

**3. The workbench UI is \_\_\_\_\_\_\_\_**

* Plug-in CORRECT
* GNU
* IDE
* Codebase

Explanation: The workbench UI is contributed by one such plug-in. When you start up the workbench, you are not starting up a single Java program, You are activating a platform runtime.

**4. Which of the following is the Compiler kit?**

* A51
* PK51 CORRECT
* CA51
* A52

Explanation: Keil development tools for the Controller Architecture supports every level of a software developer. And PK51 is a Compiler Kit.

**5. How many and what are the parts that are present in the accelerometer sensor?**

* 2, piezoelectric effect and capacitor sensor CORRECT
* 1, capacitor sensor
* 2, Capacitor sensor, digital Display
* 3, piezoelectric effect, Analog display, digital display

Explanation: The accelerometer consists of many different parts and work in many ways, two of which are piezoelectric effect and the capacitor sensor. The piezoelectric effect is the most common form of accelerometer and uses microscopic crystal structures that become stressed due to accelerative forces.  
The capacitance accelerometer senses changes in capacitance between micro structures located next to the device.

**6. \_\_\_\_\_\_\_ is the best for Internet connected thermostat.**

* Eversense
* Honeywell
* GE connected appliances
* Nest CORRECT

Explanation: Nest is the best for Internet connected thermostat, but it also makes smoke and carbon monoxide detectors and cameras. Its products also integrates with IoT home automation products d=from a variety of other vendors.

**7. Vibrant ecosystem of third parties would be critical for achieving broad adoption of an eclipse.**

* True CORRECT
* False

Explanation: Vibrant ecosystem of third parties would be critical for achieving broad adoption of an eclipse. But business partners were initially reluctant to invest in our platforms.

**8. Electric motor protection has which sensor?**

* Touch sensor
* Pressure sensor
* Humidity sensor
* Temperature sensor CORRECT

Explanation: Electric motor protection has a temperature sensor in it to verify the temperature which is exceeding its limits or not.

**9. Which axis accelerometer is mostly used in IOT?**

* 3- axis CORRECT
* Combination of all
* 2- axis
* 1- axis

Explanation: It uses 3-axis accelerometer. It detect orientation, shake, tap, double tap, fall, tilt, motion, positioning, shock or vibration.

**10. \_\_\_\_\_\_\_ is a complete line of home IoT devices that includes smart switches.**

* Cinder
* Belkin's WeMo CORRECT
* Canary
* Awair

Explanation: Belkin's WeMo is a complete line of home IoT devices that includes smart switches, cameras, lights, an air purifier and more. It allows the end user to control a lot of different devices with one smartphone app.

**1. What is WD1402A?**

* I2C
* USART
* SPI
* SPIUART CORRECT

Explanation: WD1402A is the first single chip UART on general sale. Introduced about 1971. Compatible chip included the Fairchild TR1402A and the general instruments AY-5-1013.

**2. The rate of new values is called the sampling rate or sampling frequency.**

* True CORRECT
* False

Explanation: The analog signal is continuous I time and it is necessary to convert this to a flow of digital values. It is therefore required to define the rate at which new digital values are sampled from the analog signal. The rate of new values is called the sampling rate or sampling frequency of the converter.

**3. Perfect resolution is possible when?**

* sampling rate less than twice the bandwidth of the signal
* sampling rate greater than thrice the bandwidth of the signal
* sampling rate less than thrice the bandwidth of the signal
* sampling rate greater than twice the bandwidth of the signal CORRECT

Explanation: If an ADC operates at the sampling rate greater than twice the bandwidth of the signal, then perfect reconstruction is possible given an ideal ADC and neglecting quantization error.

**4. Which proximity sensor detects positioning of an object?**

* Optical Proximity Sensor CORRECT
* Inductive Proximity Sensor
* Capacitive Proximity Sensor
* Magnetic Proximity Sensor

Explanation: They recognize, for non-contact and precisely, the positioning of the object.

**5. HDLC stands for \_\_\_\_\_\_\_\_\_\_\_**

* High level Data Link Coordinator
* High level Data Link Commutator
* High level Data Link Control CORRECT
* High level Data Level Control

Explanation: ISO standard high level data link control synchronous link layer protocols, which were with synchronous voice frequency modems.

**6. Other name for tactile sensor is\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Pressure sensor
* Humidity sensor
* Temperature sensor
* Touch sensor CORRECT

Explanation: Touch sensors are also called as tactile sensor and are sensitive to touch, force or pressure. These are one of the simplest and useful sensors.

**7. Which error occurs when the designated start and stop bits are not found?**

* Underrun error
* Break condition
* Overrun error
* Framing error CORRECT

Explanation: A framing error occurs when the designated start and stop bits are not found. If the data line is not in the expected state when the stop bit is expected, a framing error will occur.

**8. Does proximity sensor have a temperature sensor in it?**

* False
* True CORRECT

Explanation: A buit-in temperature sensor is used by the signal processing circuitry to provide stable outputs across the temperature range -40 oC to +85oC.

**9. Which proximity sensors are used in automotive?**

* Magnetic Proximity Sensor
* Inductive Proximity Sensor
* Capacitive Proximity Sensor
* Ultrasonic Proximity Sensor CORRECT

Explanation: They are widely used in automotive such as parking sensors. Ultrasonic Proximity Sensors are used in automotive.

**10. How many common ways are there for implementing an ADC?**

* 5 ways
* 10 ways CORRECT
* 2 ways
* 8 ways

Explanation: The most common ways for implementing ADC are direct conversion, successive approximation, ramp compare, Wilkinson, integrating, delta encoded, pipelined, sigma delta, time interleaved, intermediate FM stage, other types.

**1. Full form of MQTT \_\_\_\_\_**

* Message Queuing Telegram Transport
* Message Queue Telemetry Transport
* Message Queue Telegram Transport
* Message Queuing Telemetry Transport CORRECT

Explanation: MQTT (Message Queuing Telemetry Transport) is a lightweight messaging protocol that provides resource-constrained network clients with a simple way to distribute telemetry information.

**2. All operating modes work under \_\_\_\_\_\_\_\_\_\_\_\_**

* 15 kbit/s
* 100 kbit/s CORRECT
* 150 kbit/s
* 11 kbit/s

Explanation: There are several operating modes for I2C communication. All are compatible in that the 100 kbit/s standard mode is always used.

**3. RIP stands for \_\_\_\_\_\_\_\_**

* Reduced Information Protocol
* Routing Information Protocol CORRECT
* Reduced Internet Protocol
* Routing Internet Protocol

Explanation: The Routing Information Protocol is one of the oldest distance vector routing protocols which employ the hop count as a routing metric.

**4. CoAP is a specialized \_\_\_\_\_\_\_\_\_ protocol.**

* Web Transfer CORRECT
* Resource
* Power
* Application

Explanation: The CoAP is a specialized web transfer protocol for use with constrained nodes and constrained networks.

**5. CoAP is specialized in \_\_\_\_\_\_\_\_\_\_\_**

* Device applications
* Wireless applications
* Wired applications
* Internet applications CORRECT

Explanation: Constrained Application Protocol (CoAP) is a specialized Internet Application Protocol for constrained devices, as defined in RFC 7228.

**6. Which protocol has a quality of service?**

* HTTP
* XMPP CORRECT
* MQTT
* CoAP

Explanation: MQTT has different levels of quality of services. This flexibility is not available in XMPP.

**7. What does HTTP do?**

* Reduces perception of latency and allows multiple concurrency exchange
* Enables network resources and reduces perception of latency
* Enables network resources and reduces perception of latency and Allows multiple concurrent exchange CORRECT
* Allows multiple concurrent exchange and enables network resources

Explanation: It enables more efficient use of network resources and a reduced perception of latency by introducing header field compression and allowing multiple concurrent exchanges on the same connection.

**8. How many messages will HQTTP will send in 1024?**

* All
* 256
* 240 CORRECT
* 514

Explanation: It is less reliable, only 240(3G)/524(WiFi) messages were received out of total of 1024 messages.

**9. MQTT is mainly used for \_\_\_\_\_\_\_\_\_\_**

* Internet communication
* Device communication
* Wireless communication
* M2M communication CORRECT

Explanation: MQTT is a public messaging protocol designed for lightweight M2M communication. It was originally developed by IBM and is now an open standard.

**10. MQTT is \_\_\_\_\_\_\_\_\_ oriented.**

* Data
* Message CORRECT
* Device
* Network

Explanation: MQTT is message oriented. Every message is a discrete chunk of data, opaque to the broker  
MQTT is message oriented. Every message is a discrete chunk of data, opaque to the broker.

**1. ARQ stands for \_\_\_\_\_\_\_\_\_\_**

* Automatic Request Repeat
* Application Repeat Request
* Application Request Repeat
* Automatic Repeat Request CORRECT

Explanation: TCP, not UDP, provide end to end communication, i.e. error recovery by means of error detecting code and automatic repeat request protocol. The ARQ protocol also provides flow control, which may be combined with congestion avoidance.

**2. What will Security provide?**

* Secure remote management
* Product life span increases
* Long term security CORRECT
* Saves time and cost

Explanation: Connectivity, manageability, and security are core IoT building blocks, essential for reducing device manufactures, time-to-market, complexity, and risk. Wind River Intelligent Devices has security benefit which are designed for IoT software development to protect critical data throughout the device lifecycle.

**3. How many protocols are used in the application layer?**

* 15
* 10
* More than 10
* More than 15 CORRECT

Explanation: More than 15 protocols are used in the application layer, including file transfer protocol, Telnet, Trivial File Transfer Protocol and simple network Management Protocol.

**4. What translates IP address into MAC address?**

* Organizationally Unique Identifier
* Burned In Address
* Address Resolution Protocol
* Network Interface Card CORRECT

Explanation: A MAC address is given to an adapter when it is manufactured. It is hardwired or hard-coded onto your computer's NIC and it is unique to it. Something called the ARP (Address Resolution Protocol) translates an IP address into MAC address.

**5. Which requires data stream management?**

* Device data
* Bigdata
* IoT CORRECT
* Bigdata & IoT

Explanation: In order for one to claim that they can deliver IoT analytic solutions requires big data, but IoT analytics must also include: Stream data management and Edge analytics.

**6. VLSM stands for \_\_\_\_\_\_\_\_**

* Variable Length Surface Masking
* Version Length Surface Masking
* Version Length Subnet Masking
* Variable Length Subnet Masking CORRECT

Explanation: The class system of the address space was replaced with Classless Inter - Domain Routing in 1993. CIDR is based on variable length Subnet Masking to allow allocation and routing based on arbitrary length prefixes.

**7. FCP stands for \_\_\_\_\_\_\_\_\_**

* Fast Channel Protocol
* Fiber Channel Protocol CORRECT
* Field Channel Protocol
* Fiber Carrying Protocol

Explanation: Fiber Channel Protocol is the SCSI interface protocol utilizing an underlying Fiber channel connection.

**8. Application layer interacts directly with the \_\_\_\_\_\_\_\_**

* sensors
* end user CORRECT
* front user
* wired link

Explanation: In perception layer sensor networks are deployed on various locations. Network layer contains Wireless or wired link. while application layer interacts directly with the end user.

**9. Which tier is data lake enabled core analytics platform?**

* 1-Tier Analytics
* 4-Tier Analytics
* 3-Tier Analytics CORRECT
* 2-Tier Analytics

Explanation: Tier-3 is the data lake enabled core analytics platform. The tier 3 core analytics platform includes analytics engines, data sets and data management services that enable access to the data.

**10. The agent running as a \_\_\_\_\_\_\_\_\_ on a device.**

* Daemon CORRECT
* SSH Terminal
* Local agent
* Yocto Linux

Explanation: Unless we have made specific changes to the Yocto Linux meta distribution to disable specific component, we will have the agent running as a daemon on the device.

**1. DEVICE\_Restore routine restores all the device registers modified by DEVICE\_Init to their reset values.**

* False
* True CORRECT

Explanation: DEVICE\_Restore routine restores all the device registers modified by DEVICE\_Init to their reset values. This includes starting the watchdog timer and restoring the APB clock gates back to their reset value.

**2. Which computing can be heavy weight and dense form of computing power?**

* Cloud computing CORRECT
* Mobile Cloud computing
* Mist computing
* Fog computing

Explanation: Cloud computing is the practice of using a network of remote servers hosted on the Internet of store, manage, and process data, rather than a local server or a personal computer. Cloud computing can be heavyweight and dense form of computing power.

**3. Bootstrap is used for \_\_\_\_\_\_\_\_\_\_**

* Web applications CORRECT
* Data
* IoT
* Bigdata

Explanation: Bootstrap is a free and open source front end web framework for designing websites and web applications.

**4. \_\_\_\_\_\_\_\_\_ is used to visualize data collected with the sensor.**

* Dweeting
* Yocto
* freeboard.io CORRECT
* Dweet.io

Explanation: freeboard.io visualize the data collected with the sensor and published to dweet.io in many gauges and make the dashboard available to different computers and devices all over the world.

**5. DEVICE\_Init performs what?**

* Disabling watchdog timer and enabling APB clock CORRECT
* Enabling APB clock and enabling watchdog timer
* Disabling watchdog timer and disabling APB clock
* Disabling APB clock and enabling watchdog timer

Explanation: The DEVICE\_Init routine performs the following functions:  
--> Disables the watchdog timer and enables the APB clock  
--> Determines the amount of Flash and RAM in the device  
--> Check all internal and external automatic trigger sources.

**6. Which bootstrap has twelve column responsive grid layout system?**

* Bootstrap 4
* Bootstrap
* Bootstrap 2 CORRECT
* Bootstrap 3

Explanation: Bootstrap 2 was released, which added a twelve column responsive grid layout system, inbuilt support for Glyphicons, several new components, as well as changes to many of the existing components.

**7. IoT devices use \_\_\_\_\_\_\_ for security.**

* Immutable CORRECT
* Cloud
* Software
* Fognode

Explanation: These devices use a hardware-based immutable root of trust, which can be attested by software agents running throughout the infrastructure.

**8. My chat page allows searching criteria such as \_\_\_\_\_\_\_\_\_**

* Charts
* Associated tags
* Device Name
* Properties CORRECT

Explanation: Charts site will display the My Charts page that will allow you to search for devices using many search criteria, such as the device name, the associated tags, and its properties.

**9. Fog computing addresses security, data encryption.**

* False
* True CORRECT

Explanation: Fog computing addresses security, data encryption and distributed analytics requirements.

**10. \_\_\_\_\_\_\_\_\_\_\_ provides a set of stylesheets that provide basic style definition for HTML components.**

* Flexbox
* Javascript
* Bootstrap CORRECT
* Sass

Explanation: Bootstrap provides a set of stylesheets that provide basic style definition for HTML components. These provide a uniform, modern appearance for formatting text, tables and form elements.

**1. How many arguments are accepted by publish()?**

* 5 arguments
* 1 argument
* 3 arguments
* 2 arguments CORRECT

Explanation: This method accepts two positional arguments: the topic to publish to, and the body of the message.

**2. CPP embraces sharing of data between \_\_\_\_\_\_\_\_\_\_\_\_**

* Users
* Cloud and Devices
* Both devices and users CORRECT
* Devices

Explanation: Cloud privacy protection embraces sharing of data between devices and users. This sharing means that data must transmit through intermediaries and be protected while doing so.

**3. \_\_\_\_\_\_\_\_\_ specifies the function that will be called when there is a new message received from the channel.**

* Reconnect
* Error
* Connect
* Callback CORRECT

Explanation: The call to this message specifies many methods declared in the MessageChannel class  
Callback: specifies the function that will be called when there is a new message received from the channel.

**4. Which command finds out the topic?**

* rostopic bw
* rostopic delay
* rostopic find CORRECT
* rostopic echo

Explanation: Rostopic find, finds topics by type. Rostopic is implemented in python. ROSTOPIC uses YAML\_syntax at the command line

**5. OAD stands for \_\_\_\_\_\_\_\_\_\_\_**

* Orientation Application Development
* Orientational Application Distribution
* Optimal Application Development
* Optimal Application Distribution CORRECT

Explanation: The exponential growth of cloud service offering in the last year has increased the number of alternative for engineering and re-engineering applications to be partially or completely run in a cloud environment.

**6. Mobile cloud computing at its simplest refers to an \_\_\_\_\_\_\_\_\_\_**

* Intervention
* Internet
* Intervention & Internet
* Infrastructure CORRECT

Explanation: Mobile cloud computing at its simplest refers to an infrastructure where both data storage and the data processing happen outside of the mobile devices.

**7. \_\_\_\_\_\_\_\_ error will show if we try to send text string instead of bytes.**

* Compiler error
* Linker error
* Error
* TypeError CORRECT

Explanation: If we send a text string the method will raise TypeError. TypeError will show if we try to send text string instead of bytes.

**8. \_\_\_\_\_\_\_\_\_ is particularly appealing when the human's hands or eye are otherwise occupied.**

* Sound recognition
* Amplitude recognition
* Frequency recognition
* Voice recognition CORRECT

Explanation: Voice recognition is particularly appealing when the human's hands or eye are otherwise occupied. For example, it may not only convenient but also a legal requirement to use verbal commands.

**9. WiFi uses how much frequency?**

* 3GHz
* 2.4GHz CORRECT
* 2.2GHz
* 3.5GHz

Explanation: WiFi is a local wireless technology that uses 2.4GHz ultra high frequency or 5 GHz super high frequency radio waves.

**10. \_\_\_\_\_\_\_\_\_ process has to support the definition of application topologies in various formats.**

* Enrichment of Topology specification CORRECT
* Top-down and bottom-up
* Support of different Migration types
* Management and Configuration

Explanation: Enrichment of Topology specification process has to support the definition of application topologies in various formats such as TOSCA or Blueprints and must consider non-functional aspects specified as extension of the previous formats.

**1. When a client makes a GET request for /voltage/actual, the request is passed to \_\_\_\_\_\_\_\_**

* Measured Variable's HandleRequest CORRECT
* HandleRequest's MeasuredVariable
* MeasuredVariable
* HandleRequest

Explanation: When a client makes a GET request for /voltage/actual, the request is passed to Measured Variable's HandleRequest method. When this happens, the MeasuredVariable object first calls FromSensor.

**2. Which endpoint shows metric information for the current application?**

* /trace
* /metric CORRECT
* /health
* /info

Explanation: Endpoints allow you to monitor the application and, in some cases, interact with it as well. /metric shows metric information for the current application. It is also sensitive by default.

**3. What is the result for HandleGet()?**

* Null CORRECT
* Empty
* Origin
* Zero

Explanation: This method gets the current buffer state, without changing it. The method performs the necessary locking to enable safe of the buffer from multiple threads. The result may be null.

**4. Which endpoint is gathered and publishes information about OS?**

* /health
* /trace
* /metric CORRECT
* /info

Explanation: The metric endpoint is one of the most important endpoint as I gathers and publishes information about OS, JVM and Application level metric.

**5. Health information is collected from all the beans implementing Health Indicator interface.**

* True CORRECT
* False

Explanation: Health information is collected from all the beans implementing Health Indicator interface configured in your application context.

**6. Which category could be used by citizens to contribute to a smart city?**

* Personal IoT
* Group IoT
* Community IoT CORRECT
* Industrial IoT

Explanation: Community IoT where could sourcing applications could be used by citizens to contribute to a smart city.

**7. Enabled customization endpoint will be enabled only during \_\_\_\_\_\_\_\_\_\_**

* True and false cases
* Either True or false cases
* True cases only CORRECT
* False cases only

Explanation: Each endpoint can be customized with properties using the following format: endpoint.[endpoint name].[property to customize].  
Enabled - if true then it can be accessed otherwise not.

**8. What is the popular method of organizing wireless network topologies?**

* Cluster CORRECT
* Network
* Software
* Synchronization

Explanation: Clustering is a popular method of organising wireless network topologies, in which a few nodes, the cluster heads are elected as representing to route the traffic originated in the entire network.

**9. Variable voltage Sensor is an instance of Analog Sensor.**

* True CORRECT
* False

Explanation: For reading the current voltage, library class Analog Sensor that wraps an analog input port in an object that provides the method HandleGet.  
Variable voltage Sensor is an instance of Analog Sensor, initialized with pinA1.

**10. An HTTP server manages \_\_\_\_\_\_\_\_\_\_\_\_**

* Sensors
* Websites
* Resources CORRECT
* Devices

Explanation: An HTTP server manages resources. In this example, a resource is provided that has the meaning, "actual voltage value, as measured by a sensor attached to the board".

**1. AI stands for \_\_\_\_\_\_\_\_\_\_\_\_**

* Ambient Internet
* Ambient Intelligence CORRECT
* Artificial Intelligence
* Application Intelligence

Explanation: It discusses scope of Big Data Analysis, Information Communication Technology and Ambient Intelligence.

**2. The cobots assured human safety by having no internal source of \_\_\_\_\_\_\_\_**

* Industrial material
* Safe equipment
* General motors
* Motive power CORRECT

Explanation: The first cobots assured human safety by having no internal source of motive power. It is a natural agent, used to impact motion to machinery such as engine.

**3. Informed \_\_\_\_\_\_\_\_\_\_ will provide intelligent design, operation as well as safety.**

* People CORRECT
* Infrastructure
* Product
* Processes

Explanation: Informed people will people will provide intelligent design, operations and maintenance, as well as higher quality service and safety.

**4. Cobots function was to allow computer control of motion by \_\_\_\_\_\_\_\_**

* Payload CORRECT
* Power
* Motors
* Human worker

Explanation: Cobots function was to allow computer control of motion, by redirecting or steering a payload, in a cooperative way with human worker. Later cobots provided limited amounts of motive power as well.

**5. ICT stands for \_\_\_\_\_\_\_\_\_\_\_\_**

* Industrial Communication Technology
* Information Connect Technology
* Internet Communication Technology
* Information Communication Technology CORRECT

Explanation: It discusses scope of Big Data Analysis, Information Communication Technology and Ambient Intelligence.

**6. \_\_\_\_\_\_\_\_ oscillates as one ear peaks in perception before the other takes a turn.**

* Auditory decision making
* Auditory perception CORRECT
* Auditory perception and oscillations
* Oscillations

Explanation: Auditory perception oscillates as one ear peaks in perception before the other ear takes a turn. This is essential for accurately locating events in the environment.

**7. What is the last step in algorithm for reliable data transfer?**

* Message Relaying
* Initialization
* Selective recovery CORRECT
* Lost message detection

Explanation: Once a packet is detected, the AJIA mechanism relies on its routing metric to choose the best next hop for the packet re transmission.

**8. \_\_\_\_\_\_\_\_\_\_ Uses voice to control the devices.**

* Both Google Home and Apple HomePod CORRECT
* Google Home
* Apple HomePod
* Google Sheets

Explanation: Google Home, or Apple HomePod, takes in the user's voice to control the devices. Like, with the help of voice all the parts of our home can be done.

**9. Collaborative robots are easily integrated into existing production environment. With \_\_\_\_\_\_\_\_\_\_ articulation points.**

* 5
* 6 CORRECT
* 4
* 3

Explanation: Our three different Collaborative robots are easily integrated into existing production environment. 6 articulation points and a wide scope of flexibility.

**10. The most likely culprit is \_\_\_\_\_\_\_\_**

* Internet connectivity CORRECT
* Things
* Network
* Device

Explanation: The most likely culprit is internet connectivity, leaving end users unable to access their hosted data or even perform management functions.

1) How many numbers of the element in the open IoT architecture?

1. Four elements
2. Five elements
3. Six elements
4. Seven elements

**Answer:** (d) Seven elements

**Description:** There are seven numbers of elements in the open IoT architecture:

1. Configuration and monitoring
2. Cloud data storage
3. Scheduler
4. Request definition
5. Request presentation
6. Service delivery and utility manager
7. Sensor middleware (X-GSN)

2) Which of the following is the way in which an IoT device is associated with data?

1. Internet
2. Cloud
3. Automata
4. Network

**Answer:** (b) Cloud

**Description:** Cloud-based services provide a way for IoT devices to be connected to data. For example: Just as the WWW (World Wide Web) runs on the Internet, so does IoT.

3) Which of the following IoT networks has a very short range?

1. Short Network
2. LPWAN
3. SigFox
4. Short-range Wireless Network

**Answer:** (d) Short Range Wireless Network

**Description:** Short-range wireless networks have a very short range. This type of network is used for applications running in the local environment. The best example of this network is Wi-Fi and Bluetooth.

4) What is the full form of the LPWAN?

1. Low Protocol Wide Area Network
2. Low Power Wide Area Network
3. Long Protocol Wide Area Network
4. Long Power Wide Area Network

**Answer:** (b) Low Power Wide Area Network

**Description:** The full form of the LPWAN is Low Power Wide Area Network. LPWAN is a type of wireless telecommunication, and it is specially designed for M2M (Machine to Machine) and IoT devices.

5) An IoT network is a collection of \_\_\_\_\_\_ devices.

1. Signal
2. Machine to Machine
3. Interconnected
4. Network to Network

**Answer:** (c) Interconnected

**Description:** An IoT network is a collection of interconnected devices that communicate with other devices without human involvement.

6) Which one of the following is not an IoT device?

1. Amazon echo voice controller
2. Google Home
3. Nest Smoke Alarm
4. None of these

**Answer:** (d) None of the these

**Description:** These are all IoT devices. Google Home is a smart speaker that obeys all the commands given by the user. The Amazon Echo Voice Controller is also a smart speaker. The Nest Smoke Alarm is an IoT device that sends a smoke alert message to the user when a fire occurs.

7) What is the main purpose of WoT (Web of Things) in the IoT?

1. Improve the usability and interoperability
2. Reduce the security
3. Complex the development
4. Increase the cost

**Answer:** (a) Improve the usability and interoperability

**Description:** The main purpose of the Web of Things is to improve the usability and interoperability in IoT. Developing IoT Apps through WoT is much easier, faster, and less expensive.

8) What is the Arduino UNO?

1. Software
2. Hardware device
3. Network
4. Protocol

**Answer:** (b) Hardware device

**Description:** The Arduino Uno is a hardware device that is based on the Microchip ATmega328P microcontroller. It has been developed by Arduino.cc.

9) \_\_\_\_\_\_ allows the user to control electronic components.

1. Android API
2. RETful API
3. MQTT API
4. CoAP API

**Answer:** (b) RETful API

**Description:** The RETful API allows the user to control the electronic components connected to the Intel Galileo Gen 2 board via HTTP requests.

10) Which of the following is not an application of IoT?

1. Wearables
2. Smart Grid
3. Arduino
4. Smart City

**Answer:** (c) Arduino

**Description:** The Arduino Uno is a hardware device that is based on the Microchip ATmega328P microcontroller.

11) Which one of the following protocols is lightweight?

1. IP
2. HTTP
3. MQTT
4. CoAP

**Answer:** (c) MQTT

**Description:** The full form of the MQTT is Message Queue Telemetry Transport. It is a lightweight messaging protocol that runs over the TCP / IP protocol.

12) What is the role of Big Data in IoT's Smart Grid architecture?

1. Filter the data
2. Locked the data
3. Store data
4. None of the these

**Answer:** (c) Store data

**Description:** The main role of Big Data is to store data on a real-time basis. It uses multiple storage technologies to store the data.

13) What is the real example of a smart grid device in IoT?

1. Mobile phone
2. Television
3. Smart Speaker
4. Smart Meters

**Answer:** (d) Smart Meters

**Description:** Smart Grid is used to monitor the power supply. Consumers' data is collected using a smart grid, and that data is analyzed and distributed to the consumers. The real example of a smart grid device is a smart meter.

14) What is the full form of the MQTT?

1. Multi-Queue Telemetry Things
2. Multiple Queue Telemetry Things
3. Message Queue Telemetry Things
4. Message Queue Telemetry Transport

**Answer:** (d) Message Queue Telemetry Transport

**Description:** The full form of the MQTT is Message Queue Telemetry Transport. It is a lightweight messaging protocol that runs over the TCP / IP protocol.

15) What is the full form of ICT?

1. InterConnect Technology
2. Internet Connection Topology
3. Information and Communication Technology
4. Infer Communication Topology

**Answer:** (c) Information and Communication Technology

**Description:** The full form of ICT is Information and Communication Technology. ICT is a multidimensional term for the IT sector that refers to all communication technologies, including the Internet, wireless networks, cell phones, computers, and software.

16) Which of the following frequencies is correct for the Galileo gen 2 board?

1. 250 MHz
2. 400 MHz
3. 450 MHz
4. 300 MHz

**Answer:** (b) 400 MHz

**Description:** The frequency of this board is 400 MHz. The Galileo gen 2 board frequency gives the speed of operation of the board. Therefore, the speed increases as the frequency increases.

17) What is the full form of IANA?

1. Inter-Assessment-Number-Access
2. Internet-Association-Numbers-Authority
3. International-Aid-for-Network-Authority
4. Internet-Assigned-Numbers-Authority

**Answer:** (d) Internet-Assigned-Numbers-Authority

**Description:** The full form of IANA is Internet-Assigned-Numbers-Authority. It is an administrative function of the Internet that monitors the IP addresses and domain names.

18) What is the standard port number of secure MQTT?

1. 1883
2. 8000
3. 8883
4. 8888

**Answer:** (c) 8883

**Description:** The standard port number of Secure MQTT is 8883, and it is registered in IANA for Secure MQTT.

19) Which of the following layers provides end-to-end communication in IoT?

1. Logical layer
2. Data link layer
3. Transport layer
4. Session layer

**Answer:** (c) Transport layer

**Description:** The transport layer focuses on end-to-end communication, and it gives reliability and congestion avoidance that packets will be delivered in the same way as the user sent the packet.

20) Which of the following devices is used to measure the gases or liquid?

1. Optical Sensor
2. Gas Sensor
3. Smoke Sensor
4. Pressure sensor

**Answer:** (d) Pressure sensor

**Description:** The pressure sensor is used to measure the gases or liquid. Pressure is the expression of a force that is necessary to prevent fluid from expansion.

21) Which interface does the fingerprint sensor use?

1. UART interface
2. CoAP interface
3. SPI interface
4. I2P interface

**Answer:** (a) UART interface

**Description:** The fingerprint sensor uses a UART interface to store fingerprint data. It can be configured in 1:1 or 1:N mode to identify the person.

22) Which of the following protocols is used by USART?

1. RS32
2. RS232C
3. 4RS85
4. All of the these

**Answer:** (b) RS232C

**Description:** The most commonly used protocol for USART in asynchronous mode is RS232C. This protocol describes the physical interface for relatively low-speed serial data-communication between devices and computers.

23) What is the full form of HDLC?

1. Higher Data Level Communication
2. Higher Data Link Communication
3. High-level Data Link Control
4. High Data Level Control

**Answer:** (c) High-level Data Link Control

**Description:** The full form of the HDLC is High level Data Link Control. It is a communication protocol. It is used to transmit data between nodes and data points.

24) Which of the following "bit" defines the address bit in the control register?

1. ML
2. MM
3. RXWake
4. None of the these

**Answer:** (b) MM

**Description:** The MM bit defines the address bit in the control register.

25) What is another name for I2C?

1. Signal wire interface
2. Two wire interfaces
3. UART
4. USART

**Answer:** (b) Two wire interface

**Description:** The I2C protocol is also known as the two-wire interface. It is a simple serial-communication-protocol that uses pins of a microcontroller, named as serial clock (SCL) and serial data (SDA).

26) When the clock line SCL is high, the SDA is \_\_\_\_ transitioned.

1. Low
2. High
3. Medium
4. All of the these

**Answer:** (a) Low

**Description:** When the clock line SCL is high, the SDA is low transitioned. Under normal circumstances, this does not happen, as you can see in the subsequent clock pulses that the data line is stable in one state, either high or low, when the clock line is high.

27) Which of the following protocols does the secure digital card application use?

1. XMPP
2. SPI
3. MQTT
4. HTTPS

**Answer:** (b) SPI

**Description:** SPI stands for Serial Peripheral Interface. The SPI protocol is commonly used to secure digital card applications and liquid crystal displays.

28) How many logic signals are there in the SPI protocol?

1. Five signals
2. Six signals
3. Nine signals
4. Zero signals

**Answer:** (a) Five signals

**Description:** There are five logic signals in the SPI protocol.

1. SCLK (Serial Clock): This signal is used to clock-signal.
2. MOSI (Master Output Slave Input): This signal is used to transfer the data from master to slave.
3. MISO (Master Input Slave Output): This signal is used to transfer the data from slave to master.
4. SDIO (Serial Data I/O)
5. SS (Slave Select)

29) What does MOSI mean?

1. MOSI is a network line.
2. MOSI is a clock signal that sends the clock signals from master to slave.
3. MOSI is a data line that sends the data from master to slave.
4. None of the these

**Answer:** (c) MOSI is a data line that sends the data from master to slave.

**Description:** MOSI stands for Master Out Slave In. MOSI is a data line that sends the data from master to slave.

30) What is the full form of HART?

1. Highway Application Remote Transport
2. Highway Addressable Remote Transducer
3. High Address Reduce Transport
4. High Application Remote Transport

**Answer:** (b) Highway Addressable Remote Transducer

**Description:** The full form of HART is Highway Addressable Remote Transducer. It is a master and slave protocol in which a slave device only speaks when spoken by a master.

31) What is the range of z-wave?

1. 30 to 100 m
2. 300 to 1000 m
3. 100 to 1000 m
4. Only 10 m

**Answer:** (a) 30 to 100 m

**Description:** The Z-Wave is a low-power Mac protocol designed especially for smart home and small business domains. It covers the range from 30 to 100 m.

32) Which of the following topology is used for ZigBee Smart Energy?

1. Bus Topology
2. Ring Topology
3. Star Topology
4. Any Topology

**Answer:** (c) Star Topology

**Description:** ZigBee Smart Energy is designed for a wide range of IoT applications. It supports a wide range of network topologies, such as star topology.

33) Which of the following protocols does not exist at the data link layer?

1. ZigBee Smart Energy
2. LoRaWAN
3. WirelessHART
4. Secure MQTT

**Answer:** (d) Secure MQTT

**Description:** Secure MQTT is a session layer protocol. It is an extended version of the MQTT protocol that uses encryption based on lightweight attribute-based encryption.

34) Which of the following is the type of SPI controller?

1. Micro-wire or plus
2. Microwire
3. Data SPI
4. Queued SPI

**Answer:** (d) Queued SPI

**Description:** A Queued SPI is a type of SPI controller that is used to send a data queue from the SPI bus.

35) What is MQTT primarily used for?

1. User communication
2. System transfer
3. Machine to Machine Communication
4. Create connection

**Answer:** (c) Machine-to-Machine Communication

**Description:** MQTT is a public messaging protocol. It is designed for lightweight "Machine to Machine" communication. It was originally developed by IBM.

36) What is the frequency rate of z-wave?

1. 908.42 GHz
2. 928.49 GHz
3. 888.42 GHz
4. 708.49 GHz

**Answer:** (a) 908.42 GHz

**Description:** The frequency rate of z-wave is 908.42 GHz. The Z-Wave is a low-power Mac protocol designed especially for smart home and small business domains.

37) What is another name of the tactile sensor?

1. Weight sensor
2. Imaging sensor
3. Proximity sensor
4. Touch sensor

**Answer:** (d) Touch sensor

**Description:** The tactile sensor is also called a touch sensor. It is an electronic sensor used for detecting physical touch. The size of this sensor is very small.

38) How many types of capacitive touch sensors in IoT?

1. Two types
2. Five types
3. Seven types
4. Nine types

**Answer:** (a) Two types

**Description:** Two types of capacitive touch sensors in IoT:

* Projected-capacitive sensing
* Surface-capacitive sensing

39) Which of the following touch sensors is used in a cell phone?

1. Resistive touch sensors
2. Human sensor
3. Capacitive touch sensor
4. Follow sensor

**Answer:** (c) Capacitive touch sensor

**Description:** The capacitive touch sensors are widely used in portable devices such as cell phones. The main reason for this sensor development on the phone is low cost, durability, and design.

40) Which of the following languages does GSN work on?

1. Python
2. JAVA
3. Android
4. C++

**Answer:** (b) JAVA

**Description:** GSN stands for Global Sensor Network. GSN works on JAVA language because JAVA language is portable in nature. The other language (such as C, C++, Python, and HTML) is not portable in nature.

41) Which of the following is the example of a short-range wireless network?

1. VPN
2. Wi-Fi
3. Internet
4. WWW

**Answer:** (b) Wi-Fi

**Description:** Short-range wireless networks have a very short range. This type of network is used for applications running in the local environment. Examples of this network are Wi-Fi and Bluetooth.