Ch-1 Introduction to Internet of things

One Word Question's

Ques1. What is the full form of IOT?
Ans. Internet of Things.

Ques2. When was the actual idea of connected devices was proposed?
Ans. 1970

Ques3. What is the name of first recognized IOT Device?
Ans. Toaster

Ques4. Who and When created the first IOT device?
Ans. John Romkey in 1990

Quees5. Address length of IPv4 is_____.
Ans. 32 bit

Ques6. The actual term "Internet of Things" was coined in?
Ans. 1999

Ques7. Who coined the term "Internet of Things"?
Ans. Kevin Asthon

Ques8. The Internet of Things was born in?
Ans. 2008

Ques9. What is the full form of M2M?
Ans. Machine to Machine

Ques10. What is the full form of M2H?
Ans. Machine to Human

Ques11. What is the full form of H2M?
Ans. Human to Machine

Ques12. What is the full form of WOT?
Ans. Web of Things

Ques13. What is the full form of IIOT?
Ans. Industrial Internet of Things

Ques14. What is the full form of IOE?
Ans. Internet of Everything

Ques15. Pillars of IOE are?
Ans. People, Data, Process and Things

Ques16. When was the world's first internet refrigerator launched?
Ans. June 2000 by LG

Ques17. What is the full form of IANA?
Ans. Internet Assigned Numbers Authority

Ques18. IoT is based on_____ technology.
Ans. Hardware and Software

Ques19. Who is the father of IoT?
Ans. Kevin Asthon

Ques20. When was IOT launched in India?
Ans. 2015

Ques21. How many stages in IOT Architecture?
Ans. 4 Stages

Ques22. What are the stages of IOT Architecture?
Ans. Sensors/Actuators, Data Acquisition System, Edge Analytics, Cloud Analytics.

Ques23.What is uniquely identifiable embedded computing devices .
Ans. IOT

Ques24.What empowers IOT by bringing together everyday objects.
Ans. Connectivity

Ques25. What is used to reprogram a

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Bootloader in IOT devices.
Ans. ICSP (In-circuit serial programming)

Ques26.What allow us to control electronic components.
Ans. Restful API

Ques27. IOT data scalability takes care of:
Ans. Data Storage

Ques28.What is a modular and cloud based platform
Ans. Eclipse Kapua

Ques29.What is a community that is working together to establish an IOT Architecture.
Ans. Eclipse IOT

Ques30.Which is an open source stack for gateways and the edge.
Ans. Eclipse Kura

Ques31.What provides a middleware and application container for gateways and the edge.
Ans. Eclipse Kura

Ques32.Which software supporting integration binds all system devices to create body of IOT system.
Ans. Device Integration

Ques33. The Storage is_____ in IOT.
Ans. Limited

Ques34.What is medium weighted extension of cloud computing in IOT Domain.
Ans. Fog Computing

Ques35.What all are depend on Multimedia component in IOT.
Ans. Fog/Edge computing, software defined Networks for M-IOT computing, Cloud computing.

Ques36. Gateway software should be smart enough to handle.
Ans. Logging

Ques37.What category is used for business to consumer process.
Ans. Industrial IOT

Ques38.What is an IOT Network.
Ans. A collection of interconnected devices

Ques39.What company first coined fog computing.
Ans. Cisco

Ques40. IOT devices should consume_____ energy.
Ans. Low

Ques41. What is the main purpose of WOT (Web of Things)?
Ans. Improve the usability and interoperability is the main purpose of WOT.

Ques42. Which computing does not depend on Multimedia computing in IOT?
Ans. Client Server computing.

Ques43. How many number of elements in open IOT Architecture?
Ans. Seven (7)

Ques44. What is the example of smart grid device in IOT.
Ans. Smart Meters

Ques45. Major components of IOT are?
Ans. Sensors, Actuators and Smart Applications.

Ques46. IOT devices can easily lead to catastrophe without ?
Ans. Management System

Ques47. An IOT network is a collection of devices.
Ans. Interconnected

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Ques48. Following is true about IOT devices.
Ans.
i) Use Internet for collecting and sharing data
ii) Need Microcontrollers
iii) Use Wireless Technology

Ques49. Following is false about IOT devices.
Ans. IOT devices are completely safe

Ques50. Smart Phones can be used in IOT setup with categories.
Ans. 4 Applications

MCQ Questions

Ques51. Which of the following comes in LPWAN technology?
Ans. a) LoRa b) GSM
c) LTE d) CDMA

Ques52. Which of the following protocols is a publish-subscribe architecture?
Ans. a) HTTP b) MQTT
c) COAP d) HTTPs

Ques53. On which of the following standards is ZiggBee based?
Ans. a) IEEE 802.15.4 b) IEEE 802.5
c) IEEE 802.4.13 d) Both a and b

Ques54. Which of the following is a light-weight protocol used for IOT applications?
Ans. a) MQTT b) HTTP
c) Web Socket d) All of the Above

Ques55. Low-Rate private area networks are created by radio protocols such as ZigBee, Z-Wave and Thread.
Ans. a) True b) False

Ques56. An important upgrade of LTE technology is LTE-A and LTE is divided.
Ans. a) True b) False

Ques57. IOT has simplified the energy management and monitoring process while maintaining low cost and high level of accuracy.
Ans. a) False b) True

Ques58. The entire system of all transport elements like traffic control, parking fuel consumption etc. are applications of IOT.
Ans. a) True b) False

Ques59. Bluegiga apx4 supports both Ble and Wi-fi.
Ans. a) True b) False

Ques60. The use of the Internet of Things architecture in production is referred to as Industrial Internet of Things (IIOT)
Ans. a) True b) False

Ques61. API enables portability of services between
Ans. a) Services b) Networks
c) Systems d) Devices

Ques62. The Global Sensor Network is created for__
Ans. Reducing cost and time for development

Ques63. What is included in Windows 10 IOT enterprise OS?
Ans. a) Edge Gateway b) PI system
c) RAM d) Data Stream

Ques64. Who created MQTT?
Ans. a) Robert Cailliau
b) Tim Berners-Lee
c) Andy Stanford-Clark
d) Vint Cerf

Ques65. MQTT was originally created in which year?
Ans. a) 1990 b)1995
c) 1999 d)2003

Ques66. The Standard Ports of MQTT are_____.

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Ans. a) SSl b) I2C
c) TCP/IP d) UART

Ques67. Which of the following is not the concern of IOT?
Ans. a) Privacy b) Data Storage
c) Security d) Throughput

Ques68. Which one is an example of IOT?
Ans. a) Remote Monitoring
b) Smart Cities
c) Fleet Control
d) All of the Above

Ques69.What are the characteristics of IOT.
Ans. a) Intelligence, Scalable
b) Security, Connectivity
c) Heterogeneity
d) All of the Above

Ques70. What is the real example of smart grid device in IOT?
Ans. a) Smart Meters b) Mobile Phone
c) Television d) Smart Speaker

Ques71.What are the applications of IOT
Ans. a) House
b) Virtual Environment
c) Regional Office
d) All of the Above

Ques72. What is the role of cloud in smart grid architecture of IOT?
Ans. a) Security b) Collect Data
c) Manage Data d) Store Data

Ques73. Which of the Following is not an application of IOT?
Ans. a) Wearables b) Smart Grid
c) Arduino d) Smart City

Ques74. What is WOT and its usage in IOT?
Ans.
a) Wireless of Things & increase time complexity
b) Wireless of Things & reduce security
c) Web of Things & improves interoperability
d) Web of Things & increment in cost

Ques75. The metadata of the IOT services is managed by.
Ans. a) Power
b) Schedular
c) Controller
d) Package

Ques76. Gateway provides the connection between____ and____.
Ans. a) Network and Cloud
b) Cloud and Controller
c) Network and Controller
d) Controller and Device

Ques77. Which feature defines IOT?
Ans. a) Local Network
b) Non-changing conditions
c) Self-configuring
d) Non-interoperable protocol

Ques78. IOT data scalability includes _____.
Ans. a) Protocol abstraction
b) Simple and fast installation
c) Security with Hardware
d) Data Storage

Ques79. Which of the following statement is false about the IOT components?
Ans.
a) A light sensor is an (photoresistor) is an analogue sensor.
b) A microphone is a digital sensor
c) A push button is a digital sensor
d) A keyboard is a digital sensor

Ques80. Which of the following allows to monitor the application.
Ans. a) Boot b) Hypermedia
c) Actuators d) endpoints

Ques81. Which of the following is not involved in working of IOT?

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Ans. a) Server b) RFID
c) Sensor d) Nano tech

Ques82. Identify the incorrect advantage of IOT?
Ans. a) Reduce Waste
b) Enhanced data collection
c) Security
d) None of the Above

Ques83. Which of the following is not a Fundamental component of an IOT system?
Ans. a) Sensors
b) Connectivity and Data processing
c) User Interface
d) Transformer

Ques84. The device connected to the Internet of Things have to communicate automatically, not via humans. What is this called?
Ans. a) Bot-to-Bot (B2B)
b) Machine-to-Machine (M2M)
c) Inter Cloud
d) Skynet

Ques85. Internet of Things has_____
Ans. a) Greater Transparency
b) Control
c) Performance
d) All of the Above

Ques86. Which of the following is not an IOT platform?
Ans. a) Amazon Web Services
b) Microsoft Azure
c) Salesforce
d) Flipkart

Ques87.What is a connection of various kind of devices that sense and analyse the data and communicates with each other over the networks.
Ans. a) IOT Entropy b) IOT Ecosystem
c) IOT Network d) IOT Subnet

Ques88. The memory used while saving the data during 'PROGRAM' utility is:
Ans. a) DRAM b) Flash
c) SRAM d) EEPROM

Ques89. IOT promotes the creation of IOT terminal industry_____.
Ans. a) Devices b) Network
c) Clusters d) Things

Ques90. M2M is a term Introduced by .
Ans. a) IOT service provider
b) Fog computing service provider
c) Telecommunication service provider
d) None of the above

Ques91. The huge numbers of devices connected to Internet of things have to communicate automatically is called.
Ans. a) Machine to Machine b) Skynet
c) Inter cloud d) None

Ques92. The IOT platforms are mainly divided into how many types?
Ans. a) 3 types b) 5 types
c) 4 types d) 2 types

Ques93. The core element of architecture of smart city is.
Ans. a) Mobile Unified service
b) Urban Application platform
c) Management center
d) Integrated Information Provider

Ques94. IIOT mainly focused on.
Ans.
a) Convenience of individuals
b) Efficiency, safety and security of operation and individuals
c) Efficiency of the system
d) Data Security

Ques95. The prototype hardware used for IOT architecture is/are?
Ans. a) Raspberry Pi b) Arduino UNO

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c) Cubie Board d) All of the Above

Ques96. Remote enables entities that utilize IOT devices to connect and control them using a dashboard. This includes_____

Ans. a) Smart phones b) Tablet and Pcs
c) Smart Watches d) All of the Above

Ques97. Smart home consists of.

Ans.
a) Sensor Network
b) Communication Network Infrastructure
c) Intelligent control and Management
d) All of the Above

Ques98. IOT devices which have unique identities and can perform_____

Ans. a) Remote Sensing b) Actuating
c) Monitoring Capabilities d) All Above

Ques99. Which is not one of the concerns of the Internet of Things.

Ans. a) Data Storage Standards
b) Efficiency
c) Privacy Concern
d) Cyber Security

Ques100. Which of the following is IOT functional block, under logical design of IOT?

Ans. a) Communication b) Device
c) Service d) All Above

Ques101. What is the equation of Internet of Things?

Ans.
a) Physical object + Controller, Sensor and actuator + internet
b) Controller sensor and actuator + internet
c) Physical object + Internet
d) Physical object + Controller + Internet

Ques102. Internet of things can be integrated with which of these separate domains?

Ans. a) Cloud based storage and computing
b) Cyber-Physical Systems
c) Big Data Networks
d) All of the Above

Ques103.What are the main components in IOT.

Ans.
a) Low power embedded systems
b) Cloud Computing
c) Availability of Big data, networking connection
d) All of the Above

Ques104. Which of the following is not the component of IOT End point?

Ans. a) Router
b) Gateway
c) Communication Module
d) MCU

Ques105. What are the effective stages of IOT?

Ans. a) Internet gateway, Edge Information
b) Sensors and Actuators
c) Data center and cloud analytics
d) All of these

Ques106. Which is the lower layer in the IOT architecture?

Ans. a) Smart Devices b) Gateway
c) Cloud d) Service Mgmt.

Ques107. What is ESP8266 used in IOT applications?

Ans. a) Low-cost Wi-Fi module
b) Microprocessor on a chip
c) In-build HTTP software
d) High-cost Wi-Fi module

Ques108. The transportation brings some new control.

Ans. a) Building Automation
b) Smart Energy
c) Industrial Automation
d) Route Navigation

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Ques109. Which of the following can not be considered an IOT device?
Ans. a) Smart Watch b) Android Phone
c) Laptop d) Tubelight

Ques110. Which is not an IOT platform?
Ans. a) Xiaomi Cloud b) Google Cloud
c) Myntra d) AWS

Ques111. Number of approaches gateway can be installed?
Ans. a) 2 approaches b) 3 approaches
c) 5 approaches d) 7 approaches

Ques112. In IoT, Transport layer set up connections without handshakes/acknowledgements using:
Ans. a) UDP b) TCP
c) FTP d) HTTP

Ques113. Which of the following is an established set of rules that determines how data is transmitted between different device in the same network?
Ans. a) Network connection
b) TCP/ IP protocol
c) Network protocol
d) TCP protocol

Ques114. Which one is the most discussed challenge in IoT?
Ans. a) Standard b) Security
c) Regulation d) Internet

Ques115. Major Component of IoT is/are:
Ans. a) Sensors
b) Actuators
c) Smart Applications
d) All of the Above

Ques116. IoT and cloud computing has what kind of relationship?
Ans. a) Physical b) Coding
c) Complementary d) Graphical

Ques117. The IoT networks that has a very short range is:
Ans. a) WAN
b) LAN
c) Fox
d) Short-range Wireless Network

Ques118. The main objective of WoT (Web of Things) is___ .
Ans. a) Improve usability and interoperability
b) Reduce the security
c) Complicate the development
d) All of the mentioned

Ques119. Which of the following is used to capture data from the physical world in IoT devices ?
Ans. a) Sensors b) Actuators
c) Microprocessors d) Microcontrollers

Ques120. Which one is not Leading Cloud Services for IoT Deployments ?
Ans. a) AWS b) IBM Watson
c) Microsoft Azure d) Google Drive

Ques121. Which of the following is false about IoT devices ?
Ans.
a) Use internet for collecting & sharing data
b) Need microcontrollers
c) Use wireless technology
d) Are completely safe

Ques122. IoT devices can easily lead to catastrophe without____ .
Ans. a) Devices
b) Cloud
c) Software
d) Management System

Ques123.___allow data processing close to device.
Ans. a) Edge Computing
b) Cloud Computing
c) Fog Computing
d) Grid Computing

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Ques124. Which of the following helps to collaborate in IoT development ?
Ans. a) physical computing
b) chemical computing
c) mechanism
d) cloud computing

Ques125. An IoT network is a collection of_____ devices.
Ans. a) Signal b) M2M
c) Interconnected d) Network

Ques126. Does HTTP protocol take more power?
Ans. a) True b) False
Explanation:- HTTP in sending message it takes 18.43% while for MQTT it takes 16.13%.

Ques127. How many messages will HQTTP will send in 1024?
Ans. a) All b) 256
c) 240 d) 514
Explanation:- It is less reliable, only 240(3G)/524(Wi-Fi) messages were received out of total of 1024 messages.

Ques128. How many messages will HTTP will send per hour?
Ans. a) 1,708 b) 160,278
c) 3,628 d) 263,314
Explanation:- When we compare HTTP with MQTT, HTTP is lot slower, HTTP will send 1,708 messages/hour whereas MQTT sends 160,278 messages/hour.

Ques129. What is HTTP port number?
Ans. 80
Explanation:- By default, these two protocols are on their standard port number of 80 for HTTP and 443 for HTTPS

Ques130. CoAP is specialized in ?
Ans. a) Internet applications
b) Device applications
c) Wireless applications
d)Wired application

Ques131. CoAP is designed for use between devices on the same constrained network.
Ans. a) True b) False

Ques132. Which layer is CoAP?
Ans.
a) Control layer b) Transport layer
c) Service layer d) Application layer

Ques133. The core of the protocol is specified in:
Ans. a) RFC 7254 b) RFC 7252
c) RFC 7452 d) RFC 7524

Ques134. Do CoAP has memory?
Ans. a) True b) False

Ques135. CoAP does not provide any security.
Ans. a) True b) False

Ques136. XMPP is used for streaming which type of elements?
Ans. a) XPL b) XML
c) XHL d) MPL

Ques137. Which protocol has a quality of service?
Ans. a) XMPP b) HTTP
c) CoAP d) MQTT

Ques138. How many protocols are used in the application layer?
Ans. a) 15
b) 10
c) More than 15
d) More than 10

Ques139. What is Cloud Computing?
Ans.
a) Cloud Computing means providing services like storage, servers, database, networking, etc.
b) Cloud Computing means storing data in a database.

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c) Cloud Computing is a tool used to create an application
d) None of the mentioned

Ques140. Who is the father of cloud computing?
Ans. a) Sharon B. Codd
b) Edgar Frank Codd
c) J.C.R. Licklider
d) Charles Bachman

Ques141. Which of the following is a type of cloud computing service?
Ans. a) Service-as-a-Software (SaaS)
b) Software-and-a-Server (SaaS)
c) Software-as-a-Service (SaaS)
d) Software-as-a-Server (SaaS)

Ques142. Which of the following is an example of the cloud?
Ans. a) Amazon Web Services (AWS)
b) Dropbox
c) Cisco WebEx
d) All of the above

Ques143. Which of the following is an example of a PaaS cloud service?
Ans. a) Heroku
b) AWS Elastic Beanstalk
c) Windows Azure
d) All of the above

Ques144. Which of the following is an example of an IaaS Cloud service?
Ans. a) Digital Ocean b) Linode
c) Rackspace d) All of the above

Ques145. The word 'Big Data' was coined in the year:
Ans. a) 2000 b) 1978
c) 1996 d) 1998

Ques146. The feature of big data that refers to the quality of the stored data is .
Ans. a) Variety b) Veracity
c) Velocity d) Value

Ques147. Some Important Full Forms:-
Ans.

CGI	Computer Generated Imagery
CoAP	Constrained Application Protocol
DDS	Data Distribution Service
HTTP	Hyper Text Transfer Protocol
IETF	Internet Engineering Task Force
IOT-A	Internet of Things Architecture
IP	Internet Protocol
LR-WPAN	Low-rate Wireless Personal Area Network
MAC	Media Access Control
MQTT	Message Queuing Telemetry Protocol
PAAS	Platform as a service
SAAS	Software as a service
IAAS	Infrastructure as a service
REST	Representational State Transfer
RFC	Request For Comment

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SOA	Service Oriented Architecture
XMPP	Extensible Messaging and Presence Protocol

Ques148. IOT Levels related table:-

Ans.

Level No.	Devices/Nodes	Data Analysis	Data Storage
Level 1	Single Device	Local	Local
Level 2	Single Device	Local	Cloud
Level 3	Single Device	Cloud	Cloud
Level 4	Multiple Devices	Local	Cloud
Level 5	Multiple Devices	Cloud	Cloud
Level 6	Multiple Devices	Cloud	Cloud

Ques149. IOT Architecture Stages:-

Ans.

1. Sensors & Actuators	**2.** Data Acquisition System	**3.** Edge Analytics	**4.** Cloud Analytics

Ques150. IOT Architecture Layers:-

Ans.

1. Perception Layer	**2.** Network Layer	**3.** Middleware Layer	4. Application Layer	5. Bussiness Layer

Ques151. IOT Advantages:-

Ans.

1) Communication
2) Access Information
3) Automation & Control
4) Efficient and saves times
5) Better Health Care & Management
6) Efficient Usage of Electricity

Ques152. IOT Disadvantages:-

Ans.

1) Compatibility
2) Security
3) MAN (Metropolitan Area Network)
7) CAN (Campus Area Network)
8) GAN (Global Area Network)
9) PAN (Personal Area Network)
4) WAN (Wide Area Network)
5) VPN (Virtual Private Network)
6) Privacy
7) Unemployment

Ques153. Types of Computer Network.

Ans.

1) BAN (Body Area Network)
2) BSN (Body Sensor Network)
3) WBAN (Wireless Body Area Network)
4) HAN (Home Area Network)
5) NAN (Neighborhood Area Network)
6) LAN (Local Area Network)

Ques154. Ethernet in Brief.

Ans. Ethernet is developed in **1970** by **Xerox**. Standard name **802.3** given by IEEE. Speed **10 Gbps.**

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Standard	Shared Medium
802.3	Coaxial Cable, 10 BASE 5
802.3.i	Copper Twisted pair, 10 BASE T
802.3.j	Fiber Optic, 10 BASE F
802.3.ae	Fiber, 10Gbps to 40Gbps

Ques155. Wi-Max in brief.

Ans. Wi-Max technology is a standard for WMANs (Wireless Metropolitan Area Networks). It is developed in **2001**.Data Rates from **1.5mbps to 1 Gbps**.

Standard	Development Year
802.16a	2003
802.16d	2004
802.16e	2005
802.16m	2009

Ques156. Wi-Fi in Brief.

Ans. Wi-Fi (Wireless Fidelity) is developed in **1997** by **IEEE** with speed **2Mbps.**

Standard	Development year	Data Rate/Speed
802.11a	1999	54mbps
802.11b and 802.11g	1999 and 2003	11mbps and 54mbps
802.11n	2009	500mbps
802.11.ac (5th gen)	2013	1.3Gbps
802.11.ad	2012	4.6Gbps

Ques156. LR-WPAN in brief.

Ans. Low-Rate Wireless Personal Area Network. Data Rates from 40kb/s to 250 Kb/s. Provide low-cost and low-speed communication. Standard name is **802.15.4**

Ques157. Cellular Communication (2G/3G/4G/5G).

Ans. These are different type of telecommunication generations:-

Standard	Operates in	Development Year
2G	GSM-CDMA	1991
3G	UMTS and CDMA 2000	1998
4G	LTE	2010
5G	VOLTE	2016

Ques158. Difference b/w IPv4 and IPv6.

Ans.

Key points	IPv4	IPv6

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Developed in	1981	1998
Address Length	32bit	128bit
Binary representation in	Decimal	Hexadecimal
Addressing method	Numeric	Alphanumeric
Binary Bits are separated by	Dot (.)	Colon (:)

Ques159. What is 6LOWPAN?

Ans. It stands for IPv6 over Low Power Wireless Personal Area Network.

It is really the first wireless connectivity standard that was created for the IOT. The main aim of the protocol is to enable the smallest devices to use the internet protocol. Data Rates 250Kb/s.

Ques160. Difference b/w TCP and UDP.

Ans.

TCP	UDP
1. Connection-Oriented Protocol	1. Connectionless Protocol
2. It is reliable as it guarantees the delivery of data to the destination router.	2. It is unreliable as delivery of data to the destination cannot be guaranteed in UDP.
3. It is slower than UDP	3. It is faster than TCP
4. It does error checking and also makes error recovery.	4. It performs error checking , but it discard error's packets
5. It has acknowledgement segments	5. It does not have acknowledgement segments
6. It is heavy weight	6. It is lightweight
7. TCP used by HTTP, HTTPs, FTP, SMTP and Telnet	7. UDP is used by DNS, DHCP, TFTP, SNMP, RIP, and VoIP.





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