

Paper / Subject Code: 82905 / Architecting of IoT

(2 ½ Hours)
75]

[Total Marks:

N.B. 1) All questions are compulsory.

2) Figures to the right indicate marks.

3) Illustrations, in-depth answers and diagrams will be appreciated.

4) Mixing of sub-questions is not allowed.

Q. 1 Attempt All (Each of 5 Marks)
(15M)

(a) Multiple Choice Questions

1. IoT-A stands for

a) Internet of Things Address

b) Internet of Things Architecture

c) Internet of Things Area
Architecture

d) Industrial of things

2. What is the Ethernet/LAN cable used in RPi?

a) Cat5

b) Cat5e

c) Cat6

d) RJ45

3. What is the default user in Debian on Raspberry Pi?

a) Default

b) User

c) Pi

d) Root

4. Gyroscope is used for

a) Anti-theft
sensing

b) Capacitive proximity

c) Gaming

d) Angle detection

5. Data in network layer is transferred in the form of

- a) Layers
- b) Packets
- c) Bytes
- d) Bits

(b) Fill in the blanks

(personal, private, IPv4, IPv6, auto repeat request, auto repeat question, 3, 6,

TCP, UDP)

1. In 6 LoWPAN, P stands for.....
2. 32 bit IP addressing is in
3. ARQ stands for
4. Gyro Sensor MPU 6050 collects axis rotation data.
5. Voice & Data transmission is governed by protocol.

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(c) Explain in Brief

1. Define IoT. Explain architecting means in IoT.
2. Full form of IEEE.
3. In 6LoWPAN, 6 stand for what?
4. Explain, why low energy architecture needed for IoT?
5. State some applications of IoT& justify why it is IoT?

Q.2 Attempt the following (Any THREE)
(15M)

(a) Explain in brief the design principles that should be considered

while designing
the architecture of IOT.

- (b) Explain with block diagram the IOT Functional model.
- (c) Discuss features of ETSI M2M high level architecture with diagram.
- (d) Explain different M2M service capabilities with example.
- (e) How ITU-T IoT reference model works?
- (f) Discuss the following in brief
 - Sensors
 - RFID Tags

Q. 3 Attempt the following (Any THREE)
(15M)

- (a) Explain in short RPL and CORPL. What is the difference between these protocols?
- (b) Discuss the working of ZigBee and its topologies with devices.
- (c) Write a short note on 6LoWPAN with its functions and characteristic.
- (d) Write a short note on DHCP with its applications in IoT.
- (e) What are the difference between IPv4 and IPv6 protocol?
- (f) Write a short note on wireless HART.

Q. 4 Attempt the following (Any THREE)
(15 M)

- (a) Differentiate between TCP and MPTCP.
- (b) How UDP works? Explain with an example.
- (c) Discuss request and response architecture of HTTP.
- (d) Discuss different types of actors associated in MQTT protocol.

- (e) How XMPP helps in communication between two nodes/devices?
- (f) Discuss in brief working of OMA.

Q. 5 Attempt the following (Any THREE)
(15 M)

- (a) What are the objectives of IoT architecture?
- (b) Explain ideology “From IoT architecture to system Solution” with one example.
- (c) Discuss architecture and application of DASH7 protocol.
- (d) Explain Bluetooth low energy protocol with reference to data transmission.
- (e) Write a short note on AMQP and its working.
