

(2 ½ Hours)

[Total Marks: 75]

- 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
 - d) Industrial of things Architecture
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 Debain on Raspberry Pi?
 - a) Default
 - b) User
 - c) Pi
 - d) Root
4. Gyroscope is used for _____
 - a) Anti-theft
 - b) Capacitive proximity sensing
 - 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.

(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.
