(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. The_____ is a message-oriented transport layer protocol

a) Datagram Congestion Control Protocol (DCCP)
b) Data Congestion Control Protocol
c) Datagram Communication Control Protocol
d) Datagram Congestion Communication Protocol

2. Installing software through apt-get which command is been used____

a) sudo apt-get install <package-name>
b) sudo apt-get update <package-name>
c) sudo apt-get <package-name>
d) apt-get install <package-name>

3. DTLS stands for _____

a) Data Transport Layer Security.
b) Datagram Transport Layer Security.
c) Datagram Transmission Layer Security.
d) Data Transfer Layer Security.

4. The_____ command changes the user and/or group that own a file.

a) cat
b) r-w-x
c) touch
d) chown

5. An MPTCP *Connection* between endpoints is formed of one or more MPTCP Sub flows

a) True
b) False

TURN OVER

(b) Fill in the blanks
{ Full-duplex , 10 ,secure , M2M Gateway, UDP Protocol, 5 , Internet protocols}

1) The primary advantage of TLS is that, it provides a,_____ transparent channel.
2) DASH7 provides multi-year battery life, range of up to ___ km.
3) IPsec was designed as a generic security mechanism for_____.
4) The_____ contains M2M Applications and M2M Service Capabilities.
5) In _____communication occurs from sender to receiver and receiver to sender at same time.

(c) Explain in Brief
1) What is FFD?
2) Define topology?
3) How Adhoc network is created?
4) Define Protocol?
5) How much secure IoT is ?

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

(a) Explain with block diagram the IOT Functional model.

(b) What are different types of IOT reference models? Explain each one in brief.

(c) How network domain helps in establishing connection between the nodes in an IoT application?

(d) Explain the working of home automation system with device , network domain and service capabilities.

(e) Discuss the following in brief
- Sensors
- Actuators

(f) Explain with example Physical World vs. Virtual World

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

(a) How IEEE 802.15 is different from 802.11?

(b) Write a short note on 3GPP.

(c) Write a short note on 6LoWPAN with its functions and characteristics.

(d) How CORPL differs from RPL? Discuss CORPL with an IOT application.

(e) Discuss the job of Data link Layer.

(f) Discuss the working of ZigBee and its topologies with devices.

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

(a) Discuss the working of Datagram Congestion Control Protocol. Also explain ECN with an example.

(b) Discuss the important features of MPTCP.

(c) Write a short note on multi streaming

(d) How HTTP help us in our day to day life.

(e) How publisher and subscriber works in MQTT protocol

(f) Explain basic operations available in XMPP

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

(a) Discuss different M2M technologies?

(b) Write a short note on 6TiSCH.

(c) What is a Service layer? Who accesses the service layer?

(d) Discuss features of ETSI M2M high level architecture with diagram.

(e) How BBF helps to overcome the challenges faced by different organisations?

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