**Duration: 3 Hours** **[Marks: 80]**

**N.B. : (1) Question No 1 is Compulsory.**
**(2) Attempt any three questions out of the remaining five.**
**(3) All questions carry equal marks.**
**(4) Assume suitable data, if required, and state it clearly.**

1 Attempt **any FOUR** **[20]**

a What is Software Defined Networking (SDN)?

b Explain the Real Time Transport Control Protocol (RTCP) message types.

c Describe each field of Secure Shell (SSH) packet format with diagram.

d Explain Virtual Private Network in brief with diagram.

e Compare OSI and TCP/IP protocol suite.

2 a Explain concepts of device provisioning, data collection, migration and configuration management with respect to network automation. **[10]**

b What are the steps involved in image compression using JPEG standard. **[10]**

3 a What is a firewall? Explain packet filter and proxy firewall with necessary diagrams. **[10]**

b Explain IoT protocol layer diagram with protocols at each layer. **[10]**

4 a Describe each field of Real Time Transport Protocol (RTP) packet header format with diagram? **[10]**

b Explain DHCP packet format with diagram. **[10]**

5 a Explain query and response messages in DNS with header format. **[10]**

b Explain Differentiated Services (DS) with respect to Quality of Service (QoS). Explain DS field, per-hop behavior and traffic conditioner with respect to DS. **[10]**

6 a What is Voice over IP? Explain messages and address formats of Session Initiation Protocol (SIP)? How a simple session of VOIP happen using SIP? **[10]**

b Explain Pretty Good Privacy (PGP) protocol with respect to application layer security. **[10]**

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