

**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]