

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION-JUNE-2023

M.Tech-II Semester (ECE)

COURSE CODE (CREDITS): 21M11EC213 (3)

MAX. MARKS: 35

COURSE NAME: Network Security Protocols

COURSE INSTRUCTOR: Dr. Pardeep Garg

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory. (b) Marks are indicated against each question in square brackets. (c) The candidate is allowed to make suitable numeric assumptions wherever required for solving problems.

Q1. To set up a secure and authenticated communication channel between two parties via a virtual private network (VPN), which standard protocol is used? How does this protocol ensure data security to be transmitted over the public internet, discuss in detail along with its working of phase-I and phase-II. [CO-3, 6 marks]

Q2. When HTTP was developed, it was developed for a Web that was simple, that did not require dynamic graphics; and at that time which did not require the hard encryption for end-to-end transactions that have since developed. Considering the growing need for security, which protocol was developed by Enterprise Integration Technologies (EIT) based on current HTTP? Discuss in detail the working of this protocol along with headers. [CO-3, 6 marks]

Q3. At transport layer, the two protocols, Secure Socket Layer (SSL) and Transport Layer Security (TLS) which seem to be two separate protocols, but IETF standardized it under the name SSL/TLS. Discuss the functioning of SSL, its Objectives and Architecture, its handshake mechanism, SSL record protocol. Also, discuss the functioning of TLS. [CO-3, 5+3=8 marks]

Q4. Discuss in detail the functioning of cryptographic protocol developed by a group of companies such as Microsoft, IBM, Visa, MasterCard, Netscape, RSA, and others for online credit and debit card activities. [CO-3, 4 marks]

Q5. How can the sensitive communication be protected using Pretty Good Privacy (PGP)? How does it function by creating a *circle of trust*, discuss in detail. [CO-3, 4 marks]

Q6(i). As the wireless revolution rages on and more and more organizations and individuals are adapting wireless technology for their communication needs, the security in wireless networks and devices is also of equal importance. How is security in various standards of wireless communication technologies such as 2G, 3G achieved, discuss in detail? [CO-4, 4 marks]

Q6(ii). What are the wireless LANs security concerns? [CO-4, 3 marks]