

# Question Paper

Exam Date & Time: 23-Nov-2023 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences (MSIS), Manipal  
First Semester Master of Engineering - ME (Cyber Security) Degree Examination - November / December 2023

### Computer Networks and Security (Elective - 1) [CYS 5131]

**Marks: 100**

**Duration: 180 mins.**

**Thursday, November 23, 2023**

**Answer all the questions.**

- 1) Describe protocols. Explain the key elements of a protocol. Write any 5 important protocols. (4+4+2 Marks) L2, CO1, PO1 (10)
- 2) Explain the following OSI layers. (5 +5 Marks) L3, CO1, PO1 (10)
  - a. Presentation Layer
  - b. Transport Layer
- 3) Illustrate with a diagram the 3 actions performed by a network switch. (10 Marks) L3, CO1, PO1 (10)
- 4) Answer the following: (4+6 marks) L4, CO2, PO3 (10)
  - A) Explain class A IP address.
  - B) What subnets do the following hosts belong to?
    - a) 192.168.22.135/25
    - b) 192.168.99.91/27
    - c) 192.169.108.55/28
- 5) Explain DHCP. Describe the components of DHCP. (5+5 Marks) L4, CO2, PO3 (10)
- 6) Explain top-level domain (TLD). Mention the different types of TLDs. (5+5 Marks) L4, CO2, PO3 (10)
- 7) Differentiate between IPSec transport mode vs tunnel mode. Features of IPSec. (5+5 Marks) L3, CO3, PO1 (10)
- 8) Explain the fields in the following SSL/TLS handshake records. (3+3+2+2 Marks) L4, CO2, PO3 (10)
  - a. Client Hello
  - b. Server Hello
  - c. Certificate
  - d. Server hello done
- 9) Explain HTTP Flood attack and explain the steps organizations can take to mitigate HTTP Flood attacks. (6+4 marks) L4, CO4, PO3 (10)
- 10) Explain a DMZ Network and its working. Describe the uses of a Network DMZ. (6+4 marks) L4, CO4, PO3 (10)

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