

Total No. of Questions: 6

Total No. of Printed Pages:3

Enrollment No.....



Faculty of Science
End Sem Examination Dec-2023
BC3CO52 Network Security

Programme: B.Sc.

Branch/Specialisation: Computer
Science

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. Which of the following is a type of network attack in which an attacker masquerades as a trusted entity to gain unauthorized access to network resources? **1**
- (a) Injection (b) Spoofing
(c) Hijacking (d) Sniffing
- ii. Which of the following is a type of encryption that uses the same key for both encryption and decryption? **1**
- (a) Symmetric encryption (b) Asymmetric encryption
(c) Hashing (d) Digital signature
- iii. Which of the following is an objective of network security? **1**
- (a) Confidentiality (b) Integrity
(c) Availability (d) All of these
- iv. Compromising confidential information comes under _____. **1**
- (a) Bug (b) Threat
(c) Vulnerability (d) Attack
- v. What are the major components of the intrusion detection system? **1**
- (a) Analysis Engine (b) Event Provider
(c) Alert Database (d) All of these
- vi. Where is an Intrusion Prevention Systems (IPS) commonly placed in a network? **1**
- (a) In front of the firewall (b) In line with the firewall
(c) Behind the firewall (d) On the end users' device

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- vii. VPN is abbreviated as _____. **1**
 (a) Visual Private Network (b) Virtual Protocol Network
 (c) Virtual Private Network (d) Virtual Protocol Networking
- viii. There are _____ types of VPNs. **1**
 (a) 3 (b) 2 (c) 5 (d) 4
- ix. _____ routes user queries or commands to appropriate nodes in a sensor network. **1**
 (a) Bridge and gateway both (b) Gateway only
 (c) Bridge only (d) None of these
- x. A sensor network in WSN can be of _____ topology. **1**
 (a) Star
 (b) Advanced multi-hop wireless mesh
 (c) Multi-hop wireless mesh
 (d) All of these
- Q.2 i. What is network security? State different types of network security protections. **2**
 ii. How network attacks can be prevented? **3**
 iii. Explain define Hellman key exchange algorithm. **5**
- OR iv. Explain how public key cryptography may be used for identification. **5**
- Q.3 i. How do you define risk, vulnerability, and threat, in the context of network security? **2**
 ii. What is Firewall? Describe how firewall can be used to protect the network. **8**
- OR iii. What is cryptanalysis? Explain various types of cryptanalysis with an example. **8**
- Q.4 i. Explain Intrusion detection. How does an IDS work? **3**
 ii. Explain any two approaches for intrusion detection. How they prevent intrusions? **7**
- OR iii. What is IP security? How it works? **7**
- Q.5 i. What are the benefits of using a VPN? **4**
 ii. What Security Vulnerabilities are addressed by VPN? **6**

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- OR iii. What is VPN? Discuss the need of firewall in VPN along with its types. **6**
- Q.6 Attempt any two:
 i. Explain Fault-tolerance techniques in computer system in brief. **5**
 ii. What are the enabling technologies for sensor networks? **5**
 iii. Discuss the differences between proactive and reactive routing protocols. **5**

Scheme of Marking

Network Security-BC3CO52(T)

| | | | | | |
|-----|-------|--|--------------|---|--|
| Q.1 | i) | b) Spoofing | | 1 | |
| | ii) | a).Symmetric encryption | | 1 | |
| | iii) | d). All of the above | | 1 | |
| | iv) | b)Threat | | 1 | |
| | v) | d)All of the mentioned | | 1 | |
| | vi) | b)In line with the firewall | | 1 | |
| | vii) | c)Virtual Private Network | | 1 | |
| | viii) | b)2 | | 1 | |
| | ix) | b)gateway only | | 1 | |
| | x) | d)All the above | | 1 | |
| Q.2 | i. | What is Network Security? | 1 mark | 2 | |
| | | Types of Network Security Protections- | 1 mark | | |
| | ii. | Network attacks can be prevented | | 3 | |
| | | Explanation | | | |
| OR | iii. | Explain define Hellman key exchange algorithm | | 5 | |
| | | Explanation | | | |
| | iv. | Public key cryptography may be used for identification. | | 5 | |
| | | Explanation | | | |
| Q.3 | i. | How do you define risk, vulnerability, and threat, in the context of network security? | | 2 | |
| | ii. | What is Firewall? | 4 marks | 8 | |
| | | Firewall can be used to protect the network? | 4 marks | | |
| OR | iii. | What is cryptanalysis? | 4 marks | 8 | |
| | | Types of cryptanalysis with an example. | 4 marks | | |
| Q.4 | i. | Explain Intrusion detection. | 1 marks | 3 | |
| | | How does an IDS work? | 2 marks | | |
| | ii. | Any two approaches for intrusion detection. | | 7 | |
| | | (2 marks for each (2 marks * 2) | 4 marks | | |
| OR | | How they prevent intrusions? 3 | | | |
| | iii. | What is IP security? | 4 marks | 7 | |
| | | How it works? | 3 marks | | |
| | | | | | |
| Q.5 | i. | Benefits of using a VPN? | | 4 | |
| | ii. | Security Vulnerabilities Are Addressed By VPN? | | 6 | |
| OR | | Explanation | | | |
| | iii. | What is VPN? | 2 marks | 6 | |
| | | Need of Firewall in VPN along with its types. | 4 marks | | |
| | | | | | |
| Q.6 | | | | | |
| | i. | Explain Fault-tolerance Techniques in Computer System in brief? | | 5 | |
| | | Explanation | | | |
| | ii. | What are the enabling technologies for sensor networks? | | 5 | |
| | | Explanation | | | |
| | iii. | Discuss the differences between proactive and reactive routing protocols? 1 mark for each difference | (1 mark * 5) | 5 | |
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