Enrolment No._____

NATIONAL FORENSIC SCIENCES UNIVERSITY
GOA CAMPUS
M.Sc. DFIS - Semester -III/ M.Tech. I Term Assessment-1

Subject Code: CTMSDFIS SIII P1 **Date: 11/09/2024**

Subject Name: Network Security & Forensics

Time: 45 Minutes **Total Marks: 25**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q1 To Q10 Multiple Choice questions, each for 1 mark (10x1=10)

Fill the appropriate answer:

Q 1 The _____ field in an IP packet is decremented at each router hop and helps prevent infinite routing loops.

Q 2 _____ is a protocol that sends error messages and operational information about network conditions, but is not used for regular data transmission.

Q 3 The organization responsible for coordinating the global Internet's systems of unique identifiers, including IP addresses and domain names, is called _____.

Q 4 On average, _____ of all possible keys must be tried to achieve success with a brute-force attack.

Q 5 The decryption of the ZHOFRPH WR ZRUOG RI FUBSWRJUDSKB is _____ (hint: use Caesar Cipher cryptoanalysis)

Q 6 The _____ model is a conceptual framework used to understand and implement standard communication protocols in network systems.

Q 7 The _____ is the total area of a system that could be compromised by security threats.

Q 8 A _____ attack involves sending fraudulent communications that appear to come from a trusted source, typically to steal sensitive information.

Q 9 A _____ is an advanced network device that operates at both the Data Link and Network layers, capable of routing data based on both MAC and IP addresses.

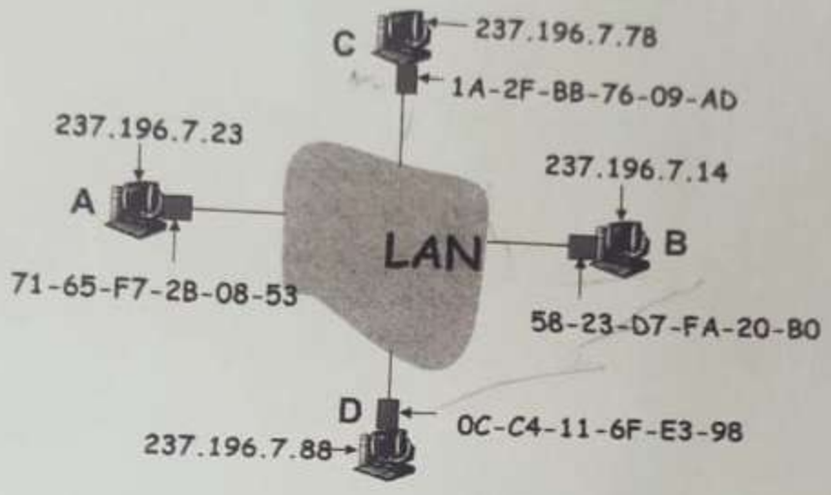
Q 10 _____ is a security measure that involves restricting user access to certain systems, applications, or data based on predefined policies.

Q11 to Q15 Descriptive 3 marks for each question (3x5=15)

Q11 Encrypt the plain text "DFIS" with the key "SQLINJECTION" using Playfair cipher. Also, verify the plain text from the generated cipher text. **03 Marks**

Q 12 Differentiate the Non repudiation, Eavesdropping, and Masquerading. **03 Marks**

Consider the following Network: **(for Q 13-14)**



Q 13 Consider the above network topology, **User A** wants to communicate with **User B**. Explain the explain ARP protocol with respect to this scenario. Further consider **User C** as the attacker and explain the ARP spoofing and TCP Session Hijacking in the same topology. **03 Marks**

Q14 With respect to the same network topology, explain TCP Session Hijacking and its countermeasures for this network attacks mentioned in question 13. **03 Marks**

Q 15 Explain following examples/terms: **03 Marks**

(i) VPN vs VLAN

(ii) Local DNS vs TLD

(iii) IDS vs IPS