

SEMESTER EXAMINATION-2021
CLASS – MCA 3RD SEMESTER, SUBJECT: COMPUTER
APPLICATIONS
MCA-C302: CYBER SECURITY

Time: 3 hour

Max. Marks: 70

Min. Pass: 40%

Note: Question Paper is divided into two sections: **A and B**. Attempt both the sections as per given instructions.

SECTION-A (SHORT ANSWER TYPE QUESTION)

Instructions: Answer any five questions in about 150 words each. Each question carries six marks. (5 X 6 = 30 Marks)

Question-1: Draw the CIA Triad of information security and explain the significance of three points.

Question-2: Correlate threats, vulnerabilities and risks associated with information security.

Question-3: Differentiate between passive and active attack on data citing suitable example, wherever needed.

Question-4: Illustrate various elements of asymmetric cryptography system.

Question-5: Why do we require message authentication? Demonstrate the ways a hash function is used to provide message authentication.

Question-6: What is a DOS attack? Specify any two kinds of DOS attack.

Question-7: Point out various issues and challenges of security in cloud and social networks

Question-8: Distinguish *physical and behavioral* biometrics security system.

Question-9: Elaborate the operations carried out by round function of DES algorithm.

Question-10: List out Cyber Security Vulnerabilities at the level of software, system administration and network

SECTION-B (LONG ANSWER TYPE QUESTIONS)

Instructions: Answer any FOUR questions in detail. Each question carries 10 marks. (4 X 10 = 40 Marks)

Question-11: What is the use of digital signature? Explain the model of digital signature process showing all the elements.

Question-12: Justify the need of intrusion detection and prevention system. How does a host-based IDPS handle the intrusions?

Question-13: How a malware can be a hazardous to the data? Differentiate the

behavior of different types of malware like virus, worms, logic bomb and Trojan horse.

Question-14: When to use the digital cyber forensics? Explain the various phases of digital cyber forensics process.

Question-15: Describe the mathematical foundation of RSA algorithm. Perform encryption and decryption using the RSA algorithm for the following :
 $p = 3; q = 11, e = 7; M = 5$

Question-16: Enumerate the role of firewall policies and actions. State the differences between stateless and state-full firewall.

Question-17: Describe the various components of IOT security and mobile hardening.

Question-18: Write short note on any four of the following :

(a) Foot printing (b) TLS security (c) OWASP (d) PGP (e) Packet Sniffing

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