UG/Integrated Even Semester Examination, 2025

COMPUTER SCIENCE

(M.Sc. 8th Semester / MCA-2nd Semester)

Course No.: MCS-556/MCA-556

(Cyber Security)

Full Marks: 70

Pass Marks: 28

Time: 3 hours

The figures in the right margin indicate full marks for the question.

UNIT-I

Answer any three questions from this unit.

1. (a) Explain CIA security model. 4

   (b) Explain RSA alogorithm with an example. 5

   (c) Compare SHA-1 and MD5 algorithms. 5

2. (a) In RSA algorithm if p=7, q=11 and e=13 then what will be the value of d? 4

   (b) Explain : (i) DoS sttack (ii) Phishing attack, (iii) Black hole attack (iv) Gray hole attack. 10

3. (a) What is packet filter? What are the types of packet filter? 4

   (b) Compare stateless and stateful firewalls. 5

   (c) Describe the architecture of VPN. 5

4. (a) Explain the role of a third-party authentication for trust in a network. 4

(b) Compare direct trust and indirect trust with diagrams. 5

(c) How trust is calculated in a network when a new node is entered? Explain. 5

5. (a) Explain various authentication approaches in a network. 6

(b) Explain : 8

(i) SSL/TLS (ii) Kerberos (iii) HTTPS (iv) SSH

6. (a) How confidentiality is ensured using hashing algorithms? 4

(b) Write the properties of malicious viruses and trojan horse. 5

(c) Explain mobile number portability (MNP). Is it linked with any security mechanisms? Explain if so. 5

UNIT-II

Answer any two questions from this unit.

7. (a) Explain the features of Indian IT Act 2000. 7

(b) Compare GSM 3G, 4G and 5G with respect to technologies. 7

8. (a) Explain the features of DPDP Act 2023. 7

(b) Explain the payment gateway transactions using diagram. 7

9. (a) Explain the cybercrime cases : (i) Fake profile in social networking, (ii) AIIMS Data Hack. 8

(b) Explain the cyber security initiatives in India. 6

10. (a) Draw the protocol stack of WAP and explain. 6

(b) What are the main points of the new draft proposed for DPDP Act 2025? Explain any four points. 8

******