

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BCA
BRANCH: BCA**

**SEMESTER : V
SESSION : MO/2023**

SUBJECT: CA322 NETWORK SECURITY

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
-

		CO	BL
Q.1(a)	Using a suitable diagram provide a detailed conceptual overview of the ISO OSI reference model by highlighting the functions of its layers.	[5] 1	3
Q.1(b)	Describe briefly different types of active and passive attacks and explain how passive attacks differ from active attacks in terms of their approach to information gathering?	[5] 4	2
Q.2(a)	What is a Message Authentication Code (MAC), and how does it contribute to the security of message transmission in a communication system?	[5] 4	3
Q.2(b)	Define what a hash function is and how it transforms input data into a fixed-size hash value. Differentiate briefly between MD4 and MD5.	[5] 1	2
Q.3(a)	What is the role of a Certificate Authority (CA) in the context of digital certificates and cryptographic systems.	[5] 3	1
Q.3(b)	Briefly discuss the benefits and limitations of different types of authentication systems that can be used for authentication.	[5] 3	2
Q.4(a)	Write a detailed note on different types of DoS attacks and compare some of the mitigation techniques that can be used to counter them.	[5] 5	5
Q.4(b)	Discuss in detail the working of SSL/TLS protocols and explain how they provide secure communication channels over the Internet?	[5] 4	2
Q.5(a)	What is S-MIME and how does it enhance email security? Explain the working of any one of the protocols that are used for email security.	[5] 2	3
Q.5(b)	What are Firewalls? Differentiate between stateful inspection and packet filtering in firewalls.	[5] 2	4

:::28/11/2023:::M