JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

M.Tech-I Semester (CSE)

COURSE CODE (CREDITS): 10M1WCI131(3) MAX. MARKS: 25

COURSE NAME: System and Network Security

COURSE INSTRUCTORS: Kuntal Sarkar MAX. TIME: 1 Hour 30 Minutes

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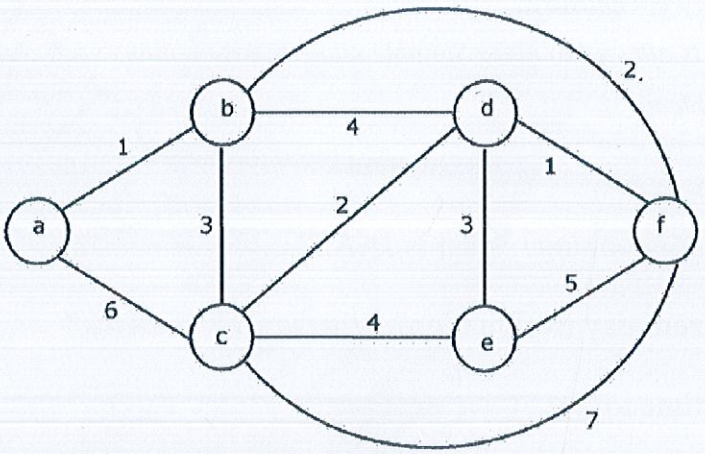
Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	Marks
Q1	(a) What is Sandboxing? What is JAAS?	1
	(b) What is zero day exploitation? What is DDOS attack?	1
	(c) What is time to live? Give example.	1
	(d) What are the differences between link state and distance vector routing? (4 Points)	1
	(e) What is access matrix? What is fuzzing?	1
Q2	(a) Describe how poison reverse works?	2
	(b) When Nagle's solution and Clark's solution needed? Explain these solutions.	2
Q3	(a) Describe state transition of TCP.	2
	(b) Suppose the value of the window scale factor is 3 and the host receives an acknowledgment in which the window size is advertised as 512. What is the size of the window this host can use?	1

Q4	(a) Let the size of the congestion window of a TCP connection be 64 KB when a timeout occurs. The RTT of the connection is 50 msec and the maximum segment size is 2 KB. The time taken by the TCP to get back to the 64 KB congestion window is? If the initial window size is 1 MSS.	2
	(b)  Suppose 'a' is the source and 'f' is the destination. We want to communicate by open shortest path first algorithm. Write down the path which is suitable for communication?	1
Q5	(a) An IP datagram carrying 10000 bytes of data must be sent over a link that has an MTU of 4468 bytes. Assume the datagram has no options and the identification number is 218. How many fragments will be generated? State the values (in decimal numbers) of the following fields for each of the fragments: Identification, total length, DF bit, MF bit, fragment offset.	3
	(b) Suppose Router A directly connected with Network X and Router B is connected with Router A. If Network X connection fails what happens if we apply distance vector routing?	2

Q6	(a) A network with 5 routers, R1 to R5 connected with links having weights are R1 to R2 is 7, R1 to R3 is 3, R2 to R3 is 3, R2 to R4 is 7, R3 to R5 is 10, R4 to R5 is 1. All routers use the distance vector based routing algorithm to update their routing tables. Each router starts with its routing table initialized to contain an entry for each neighbor with the weight of the respective connecting link. After all the routing tables stabilize, a number of links are there in the network which if it goes down, doesn't lead to the count-to-infinity problem?	3
	(b) Give a brief idea of when we apply the weak possibility of congestion and the strong possibility of congestion.	2