



PRESIDENCY UNIVERSITY

BENGALURU

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End - Term Examinations – May/June 2026

Date: 14 – 05- 2026

Time: 01:00pm – 04:00pm

School: SOCSE	Program: B.Tech.	
Course Code: CSN2510	Course Name: Software Defined Networks	
Semester: VI	Max Marks:100	Weightage: 50%

CO - Levels	C01	C02	C03	C04
Marks	26	24	26	24

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	List any two SDN flavors.	2 Marks	L2	C01
2.	What are access control violations in SDN?	2 Marks	L2	C01
3.	Describe the challenges of maintaining consistency in distributed SDN controllers.	2 Marks	L2	C01
4.	What are the main layers/planes in SDN architecture?	2 Marks	L2	C02
5.	What are the components of a flow table entry?	2 Marks	L2	C02
6.	What is Mininet and why is it widely used in SDN research?	2 Marks	L2	C03
7.	Explain the concept of Open Network Linux (ONL).	2 Marks	L2	C03
8.	Explain the role of FlowVisor in network virtualization.	2 Marks	L2	C03
9.	List the components of the NFV MANO architecture.	2 Marks	L2	C04
10.	What challenges arise in multi-domain SDN environments?	2 Marks	L2	C04

Part B

Answer the Questions.

Total Marks 80M

11.	Describe the SDN architecture in detail. Explain the roles of the application, control, and data planes.	10 Marks	L2	CO1
Or				
12.	Explain the concept of Quality of Service (QoS) in SDN. How does SDN enable dynamic QoS provisioning?	10 Marks	L2	CO1
13.	Discuss consistency issues in SDN control planes. Explain how distributed controllers maintain synchronization.	10 Marks	L2	CO1
Or				
14.	Evaluate the opportunities offered by SDN in modern networking. Include examples from cloud computing, 5G, and IoT.	10 Marks	L2	CO1
15.	Discuss the role and functionality of a Network Operating System (NOS) in SDN.	10 Marks	L2	CO2
Or				
16.	Explain the structure and working of flow tables in SDN switches.	10 Marks	L2	CO2
17.	Compare centralized and distributed SDN architectures with suitable examples.	10 Marks	L2	CO2
Or				
18.	Critically evaluate the challenges associated with SDN architecture, including control plane bottlenecks and consistency issues.	10 Marks	L2	CO2
19.	Apply the concept of declarative SDN languages (e.g., Pyretic/Frenetic) to implement a traffic filtering policy. Explain how abstraction simplifies programming.	10 Marks	L3	CO3
Or				
20.	Apply Mininet to emulate a simple SDN network and test connectivity between hosts. Describe the steps involved.	10 Marks	L3	CO3
21.	Demonstrate how RouteFlow integrates traditional routing protocols with SDN and apply it to a hybrid network scenario.	10 Marks	L3	CO3
Or				
22.	Demonstrate how an SDN controller manages network traffic by dynamically installing flow rules in switches.	10 Marks	L3	CO3

23.	Apply the concept of network programmability to design a system that dynamically adjusts bandwidth allocation based on traffic demand.	10 Marks	L3	CO4
Or				
24.	Apply the NFV MANO framework to deploy and manage a multi-tier network service. Illustrate the roles of NFVO, VNFM, and VIM.	10 Marks	L3	CO4
25.	Apply the concept of network slicing to a 5G use case. Explain how different slices are created and managed.	10 Marks	L3	CO4
Or				
26.	Demonstrate how SDN tools (e.g., Mininet, Ryu, OpenDaylight) can be used to develop and test a programmable network.	10 Marks	L3	CO4