Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – MARCH 2026

Date: 10- 03- 2026 **Time:** 09:30am – 11:00am

School: SOCSE	**Program:** B.Tech. Computer Science and Engineering (Networks)	
Course Code: CSN2510	**Course Name:** Software Defined Networks	
Semester: VI	**Max Marks:**50	**Weightage**: 25 %

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**26**	**24**			

Instructions:

(i) ***Read all questions carefully and answer accordingly.***

(ii) ***Do not write anything on the question paper other than your roll number.***

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	Define Software Defined Networking (SDN) and list any two advantages over traditional networks.	**2 Marks**	**L**	**CO1**
2	State the role of the SDN controller in the SDN architecture.	**2 Marks**	**L**	**CO1**
3	List two scalability challenges of SDN in data center or service provider networks.	**2 Marks**	**L**	**CO1**
4	Summarize the role of a Network Operating System (NOS) in Software Defined Networking.	**2 Marks**	**L**	**CO2**
5	Compare and contrast the data plane and control plane in SDN architecture.	**2 Marks**	**L**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	**a.**	Summarize the evolution of Software Defined Networking (SDN) by discussing its brief history along with important time frames and key developments, starting from early programmable networks to modern SDN frameworks.	**10 Marks**	**L**	**CO1**
		Or			
7.	**a.**	Explain the real-world deployment of Software Defined Networking (SDN) by describing where it is used and discussing the benefits of deploying SDN in practical networking environments.	**10 Marks**	**L**	**CO1**
8.	**a.**	Describe the SDN architecture in detail and analyze how the separation of control and data planes improves network programmability and flexibility.	**10 Marks**	**L**	**CO2**
		Or			
9.	**a.**	Explain the northbound and southbound interfaces in SDN and evaluate their significance in enabling communication between applications, controllers, and network devices.	**10 Marks**	**L**	**CO2**
10.	**a.**	List the reliability and consistency challenges in SDN, with reference to Quality of Service (QoS), service availability, configuration management, and access control violations, and discuss the associated opportunities and challenges.	**10 Marks**	**L**	**CO1**
		Or			
11.	**a.**	Name the types of SDN implementation by describing (I) Open SDN, (ii) SDN via APIs, and (iii) SDN via Hypervisor-based Overlay Networks, and compare their architectural characteristics and working principles.	**10 Marks**	**L**	**CO1**
12.	**a.**	Describe the data plane, control plane, and management plane in SDN and compare their functions and interactions within the SDN framework.	**10 Marks**	**L**	**CO2**
		Or			
13.	**a.**	Summarize the concept of a Network Operating System (NOS) and explain its role in managing and controlling Software Defined Networks. Illustrate with a suitable example.	**10 Marks**	**L**	**CO2**