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Question Paper Code:U2306

B.E./B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Professional Elective

Computer Science and Engineering

21CSV306- SOFTWARE DEFINED NETWORKS

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

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| 1. What is southbound interface? | CO1- U |
| 2. How does control plane and data plane communicate in SDN? | CO1- U |
| 3. What are the two interior router protocols? | CO1- U |
| 4. What is SDN controller? | CO1- U |
| 5. List the function of data center orchestration. | CO1- U |
| 6. What are the two CCN packets? | CO1- U |
| 7. What are the key components of Virtualization in SDN. | CO 1- U |
| 8. Define Forwarding Equivalence Class(FEC). | CO 1- U |
| 9. What is a Service Function Chain (SFC) in VNFs? | CO 1- U |
| 10. How does NFV help in virtualizing network functions? | CO 1- U |

PART – B (5 x 16= 80 Marks)

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| 11. (a) Propose an SDN application that can dynamically detect and mitigate bandwidth bottlenecks in real time. Discuss its architecture and implementation steps. | CO2- App | (16) |
| Or | | |
| (b) Identify and discuss real-world applications of SDN in data centers and enterprise networks. | CO2- App | (16) |
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| 12. (a) Explain about the architecture and function of SDN data plane | CO1- U | (16) |
| Or | | |
| (b) Explain in detail about the open flow logical network device | CO1- U | (16) |

13. (a) Describe the interaction between SDN applications, controllers, and the data plane with an example scenario. CO1- U (16)
- Or
- (b) Explain the role of firewalls and Intrusion Detection/Prevention Systems (IDS/IPS) in data center security. CO1- U (16)
14. (a) Consider an organization with three departments (HR, IT, and Sales). Design a VLAN strategy to segment their network efficiently. CO2- App (16)
- Or
- (b) Provide a real-world example of NFV deployment in telecom or enterprise networks. CO2- App (16)
15. (a) Explain the significance of VNF orchestration and how it is achieved using MANO (Management and Orchestration). CO1- U (16)
- Or
- (b) Explain the role of Network Function Virtualization (NFV) in modern network architectures. CO1- U (16)