Exam.Code:0999
Sub. Code: 7299

2074
M.E. (Computer Science and Engineering)
First Semester
CS-8103: Advanced Computer Networks
(For UIET only)
(Common with ME Comp. Sci. (Cyber Security), CSN 8102)

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: ***Attempt five questions in all, including Question No. 1 which is compulsory and selecting one question from each Section.***

x-x-x

Q1. (i) What are the common networking protocols used by Macs for LAN?
(ii) What is dual-stack implementation?
(iii) What is the purpose of the TCP three-way handshake?
(iv) What is the application of SDN in Wide Area Network?
(v) What is the significance of latency in VANETs? 10

SECTION-A

Q2. (i) What are the common standards for Wireless LAN? Why is CSMA/CA important for wireless networks? How does CSMA/CA contribute to Quality of Service (QoS) in wireless networks? 5

(ii) What is IPv6 auto-configuration? How do devices determine the link-local address in IPv6? 5

Q3. (i) What are the main challenges TCP faces in wireless networks? How does Explicit Congestion Notification improve TCP performance in wireless networks? 4

(ii) Explain the difference between:
(a) Vertical handover and Horizontal handover
(b) Control plane and Data Plane 6

Q4. What are the key components of SDN architecture? What are the challenges of implementing SDN in existing network infrastructures? 10

SECTION - B

Q5. (i) What role does the operating system play in mobile computing architecture? How does mobile computing architecture enable IoT integration and device interoperability? 6

(ii) Explain the working of RFID technology. 4

Q6. (i) What factors influence the decision to perform cell splitting? How does sectoring improve spatial reuse of frequencies in cellular networks? 5

(ii) What are the fundamental differences between 4G LTE and previous generations like 2G, 3G? How does LTE handle voice calls, and what is Voice over LTE? 5

Q7. Write short notes on the following:

(i) Reactive Routing Protocols in Adhoc Networks
(ii) Bluetooth Protocol Stack 10

x-x-x