

Full Marks: 100

Time: 3 hours

1. (5+5+10)
  - a. What are the advantages and disadvantages of wireless networks over wired networks?
  - b. Comment on the services provided by 3G, 4G, and 5G wireless systems?
  - c. Explain CSMA/CA protocol with suitable examples.
2. (12+8)
  - a. Describe how mobile terminated calls can be handled in GSM.
  - b. List three important entities in GSM architecture and explain their functions.
3. (4+6+4+6)
  - a. List the problems encountered by TCP in wireless networks.
  - b. List some advantages and disadvantages of split connection approach to enhance TCP performance in wireless networks.
  - c. When a mobile device crosses cell boundary, a handoff takes place. How does this fact affect TCP performance?
  - d. Describe the localization scheme to improve TCP performance in wireless environment.
4. (4+2+10+4)
  - a. What are the functions of home agent and foreign agents in mobile IP protocols?
  - b. What is the difference between the foreign agent care-of-address and co-located care-of-address?
  - c. Describe the operation of HMIPv4.
  - d. Why we need micro mobility support in mobile IP based networks?
5. (6+7+7)
  - a. Why is routing in multi-hop ad-hoc networks complicated, what are the special challenges?
  - b. Describe the operation of dynamic source routing algorithm.
  - c. Describe how DSDV avoids count-to-infinity problem.
6. (6+7+7)
  - a. List different IFS of IEEE 802.11 according to priority level and mention the type of traffic/service used in each IFS.
  - b. Describe CSMA/CA in PCF mode.
  - c. Describe a suitable clock synchronization scheme for infrastructure WLAN.
7. Write short notes: (10+10)
  - a. End-to-End Approach for TCP in Mobile Network
  - b. MAC Protocols for ad-hoc networks