2022

Ad-hoc and Sensor Network

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Explain the process of Wi-Fi Access Point setup? What are the key configurations that you must change from its default setting before its deployment?	10
	b)	List the frames that are exchanged to connect your device to a Wi-Fi AP and discuss their roles.	10
2.	a)	After getting connected to Wi-Fi, how devices do the data transmission? Explain the entire process.	10
	b)	What problem might arise if two devices are trying to send the data at the same time to the connected Wi-Fi AP, considering these two devices are not able to listen to each other. How are these situations handled?	10
3	a)	If you want vehicles to exchange messages to other vehicles for safety purposes, what kind of wireless network setup will be suitable ? What will be the challenges related to their communication ? How can those challenges be addressed?	10
	b)	Explain the role of 5G and sensor networks in Smart Agriculture with an example ?	10
4.	a)	Explain the role of routing in a smart border surveillance system that uses the wireless sensor nodes. Explain how this routing protocol will work and how it should be designed for better communication to meet the objectives.	15
	b)	Classify the routing protocol for ad hoc wireless networks.	5

5.	a)	What are the objectives of transport layer protocol? What mechanisms does the TCP protocol use to deal with the infinite waiting problem, Duplicate data problem and Missing Packet Problem?	15
	b)	Why does TCP not work well in Ad hoc networks?	5
6.	a)	How can TCP be improved for adhoc networks? Explain the design principles of TCP protocol for adhoc network or Explain working principle of any existing protocol.	15
	b)	List out the key hardware and software components of a sensor node.	5
7	a)	Explain the security, privacy and trust issues in adhoc or sensor networks with examples. Suggest possible solutions to these issues.	20