

2023

**Adhoc 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)	Elaborate on the various communication technologies available on your smartphone. Provide a detailed explanation of each technology's functionalities. Illustrate the step-by-step process of downloading a file from the internet onto your smartphone.	10
	b)	If tasked with establishing a network for coordinating activities among vehicles or drones, which network setup would you choose? Describe the chosen network architecture in detail, explaining the communication process.	10
2	a)	Explain the hidden and exposed terminal problems with an example and diagrammatic illustration.	10
	b)	Describe how the Media Access Protocol for Wireless LANs (MACAW) works and how it addresses the issues of hidden and exposed terminal problems.	10
3	a)	What are the main objectives of MAC protocol, and different classes of MAC protocol? Explain TDMA/FDMA/CDMA approach.	10
	b)	Explain different components of Sensor node and describe the WSN architecture for Smart Agriculture in detail.	10
4	a)	What are the major challenges of designing a MAC protocol for wireless sensor network? Explain them in detail.	10
	b)	Explain the working principle of S-MAC protocol with an example and diagrammatic illustration.	10
5	a)	Explain the classification of Adhoc network routing protocols and state the difference between proactive and reactive routing.	10
	b)	Explain the DSR routing protocol with flow diagram and an example.	10
6	a)	Describe various routing challenges and design issues in WSNs.	10

	b)	Draw the taxonomy of Routing Protocols in WSNs. Describe implosion, overlap and resource blindness issue of basic flooding approach for information dissemination in WSN.	10
7	a)	Explain the working principle of SPIN protocol with a diagrammatic illustration and list SPIN family protocol.	10
	b)	List the major functionalities performed by TCP and explain why TCP doesn't perform well Adhoc wireless network?	10

