Reg. No. :

Question Paper Code:U2521

M.E. DEGREE EXAMINATION, APRIL 2024

Electives

Communication Systems

21PCM521- WIRELESS SENSOR NETWORKS

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Design a multihop network with necessary sources and sinks.   CO3- App   (20)

Or

(b) Present a wireless sensor network design that can be used for   CO3- App   (20)
surveillance and environment monitoring in a zoo. A zoo is a
facility in which animals are confined within enclosures,
displayed to the public, and in which they may also be bred.
State the functional requirements you are considering.

2. (a) Explain the concept of localization and positioning in detail, List   CO1- U   (20)
various services offered by localization.

Or

(b) Illustrate the three possible approaches in determining the node's CO1- U   (20)
position.

3. (a) Compare WSN Design Issues for MAC protocols, Routing   CO3- App   (20)
protocols and Transport protocols in detail.

Or

(b) Why is implementation of MAC protocols important in context of CO3- App   (20)
WSNs? Also Elaborate on the requirements of MAC protocols for
WSNs.

4. (a) In a crowded network many wireless networking problems are CO4- Ana (20)
aggravated by the large number of neighbors. Many nodes
interfere with each other, a lot of possible routes, nodes use large
transmission power to talk to distant nodes directly and routing
protocols may be recomputed their routes. Provide a solution for
the problems addressed in the scenario given above.

<div align="center">Or</div>

(b) Determine and create a hierarchical structure that will allow for the CO4- Ana (20)
construction of nodes and the more effective use of resources like
power, bandwidth, and frequency spectrum.

5. (a) Examine and contrast the various simulation tools available for CO5- Ana (20)
WSN realization and analysis.

<div align="center">Or</div>

(b) Propose an Energy Efficient Clustering protocol to extend WSN CO5- Ana (20)
lifetime and evaluate QoS parameter performance.

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