Code No: **R42047**

R10

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time: 3 hours   **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) What are the major challenges wireless sensor networks are facing? Explain in detail.   [8]
   b) Discuss in brief the difference between Ad hoc networks and wireless sensor networks.   [7]

2 a) Explain in detail with neat diagram main sensor node hardware components.   [8]
   b) Discuss in detail how communication is established between WSN and Internet.   [7]

3 a) Explain in detail choice of modulation schemes in WSN.   [8]
   b) Write about the topologies of PAN.   [7]

4 a) What are the different Contention based protocols, write about CSMA Protocol.   [8]
   b) Write about the MAC protocol that uses Directional Antennas.   [7]

5 a) Explain the different issues in designing a routing protocol.   [7]
   b) Discuss in detail about STAR protocol.   [8]

6 a) Give the comparison of TCP solutions for Ad-hoc wireless networks.   [7]
   b) Write about tradition TCP and explain its inefficiency in Ad-hoc wireless networks.   [8]

7 a) Explain the network security requirements in wireless sensor network.   [8]
   b) Write about security aware AODV protocol.   [7]

8   Write short notes on
   a) Berkeley motes   [7]
   b) Wireless fidelity systems   [8]

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Code No: **R42047**

R10

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015
WIRELESS SENSOR NETWORKS
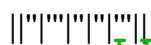**(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)**

Time: 3 hours   Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a)   Explain in detail the application of Wireless Sensor Networks.   [7]

   b)   Write about the enabling technologies for wireless sensor networks.   [8]

2 a)   Discuss in detail about the energy consumption of Sensor Networks.   [8]

   b)   Write about optimization goal and Figure of Merit.   [7]

3   Explain in detail physical layer and trans-receiver design considerations
        WSNS.   [15]

4 a)   What is the principle behind scheduled based protocol? Explain any one
        schedule based protocol.   [8]

   b)   Write about fixed assignment and demand assignment protocol.   [7]

5 a)   Write about hidden and exposed terminal problems.   [8]

   b)   Give the classification of routing protocol based on routing topology.   [7]

6 a)   Write about Ad-hoc transport protocol.   [7]

   b)   Write about TCP with explicit link failure notification.   [8]

7 a)   Write about various network security attacks.   [7]

   b)   Explain secure efficient Ad-hoc distance vector routing protocol.   [8]

8   Write short notes on

   a)   Programming challenges in sensor network   [7]

   b)   Smart metering applications   [8]

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R10

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time: 3 hours   **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) Write in detail different types of applications, Wireless sensor networks are used.   [8]
   b) Give the advantages of sensor networks.   [7]

2 a) Write about programming paradigms and application programming interfaces.   [8]
   b) What are the various types of mobility .Explain?   [7]

3 a) Describe in detail hidden node and exposed node problems.   [7]
   b) Write in detail about PAN and MANETS.   [8]

4 a) Discuss different types of MAC protocols.   [7]
   b) Write in detail about MAC layer Energy problems.   [8]

5 a) Discuss in detail DSDV rating protocol with diagrams.   [8]
   b) Explain about cluster head gateway switch routing protocol.   [7]

6 a) Write about application control transport protocol.   [7]
   b) Explain about TCP-bus.   [8]

7 a) What is the key management and give various key management approaches.   [7]
   b) Explain different symmetric key algorithms.   [8]

8   Write short notes on
   a) Node level simulators   [7]
   b) Ultra wide band radio communication   [8]

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Code No: **R42047**

R10

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015
WIRELESS SENSOR NETWORKS
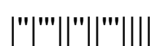**(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)**

Time: 3 hours   Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) Write about the enabling technologies for wireless sensor networks.   [7]

   b) What are the major challenges wireless sensor networks are facing? Explain in
       detail.   [8]

2 a) Explain the need for Gateways and write about Wireless Sensor Network
       tunneling.   [8]
   b) Write about various types of sources and sinks.   [7]

3 a) Write in detail about MANETS and WANETS.   [7]

   b) What is dynamic modulation scaling? Explain.   [8]

4 a) Discuss the Design challenges of a MAC protocol for Ad-hoc wireless
       networks.   [8]
   b) Write about fixed assignment protocols and random Access protocols.   [7]

5 a) Discuss about efficient flooding routing protocols.   [7]

   b) Write about temporary ordered routing protocol.   [8]

6 a)   What are the issues in designing transport layer protocol? Explain.   [7]

   b) Write about tradition TCP and explain its inefficiency in Ad-hoc wireless
       networks.   [8]

7 a) Write about secure routing in wireless Ad-hoc networking.   [8]

   b) Explain different asymmetric key algorithms.   [7]

8   Write short notes on
   a) State- centric programming   [7]
   b) Home automation   [8]

Code No: **R42047**

R10

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time: 3 hours   **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
*****

1	a)	How does adhoc network differ from wireless networks?	[8]
	b)	Mention the major applications of Wireless Sensor Networks.	[7]
2	a)	Describe the single node architecture with appropriate diagram.	[8]
	b)	Explain energy aware protocols in WSN.	[7]
3	a)	Discuss the Security issues in MANETs.	[8]
	b)	Explain in detail about the different types of MANET routing Algorithms.	[7]
4	a)	Mention the MAC layer challenges in Wireless Sensor Networks.	[8]
	b)	What are the Design goals of a MAC Protocol for Ad Hoc Wireless Networks?	[7]
5	a)	List the classification of routing protocols in ad hoc networks. Explain any two in detail.	[8]
	b)	What are the issues in designing a Routing Protocol for Ad Hoc Wireless Networks?	[7]
6	a)	What are the design Goals of a Transport Layer Protocol for Ad Hoc Wireless Networks?	[8]
	b)	Justify what are the solutions for classification of transport layer.	[7]
7	a)	Explain how security is provided in adhoc sensor networks.	[8]
	b)	Describe the time synchronization in adhoc sensor networks.	[7]
8	a)	Describe the Berkeley Motes in detail.	[8]
	b)	Give the description of future direction of Wireless Sensor Networks.	[7]

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Code No: **R42047**

R10

Set No. 2

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016
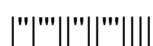## WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) What are the deployment challenges in Wireless Sensor Networks? [8]

   b) List the application areas of sensor networks. [7]

2 a) Discuss about quality of sensor network. [8]

   b) Draw and explain sensor network architecture. [7]

3 a) Define the problem of Hidden and Exposed terminals. [8]

   b) What are the different kinds of multiplexing techniques? Explain them. [7]

4 a) Explain the issues in Designing a MAC protocol for Ad Hoc Wireless Networks. [8]

   b) With relevant examples explain any two MAC layer protocols in Wireless Sensor Networks. [7]

5 a) Why TCP protocols used in wired network is not suitable for wireless networks? Compare the different TCP protocols over ad hoc networks. [8]

   b) Explain the OLSR protocol in detail. Compare it with AODV protocol. [7]

6 a) Describe the issues in Designing a Transport Layer Protocol for Ad Hoc Wireless Networks. [8]

   b) What are the challenges in transport layer for Adhoc networks? [7]

7 a) Explain the Clustering in detail. [8]

   b) What are the requirements in network security? [7]

8 a) Explain the Node level simulators in detail. [8]

   b) Describe the Wireless Fidelity systems in detail. [7]

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Code No: **R42047**   **R10**   Set No. 3

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time: 3 hours   Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) Differentiate ad hoc networks & sensor networks. Outline the features of Wireless Sensor Networks.   [8]
   b) Compare the features of cellular networks and ad hoc networks.   [7]

2 a) Draw and explain the architecture of Sensor Networks.   [8]
   b) Describe in detail about the energy consumption of sensor nodes.   [7]

3 a) Explain in detail about Transceiver Design Considerations.   [8]
   b) Explain the properties of MANETs.   [7]

4 a) Explain MAC layer challenges in Wireless Sensor Networks.   [8]
   b) Explain the design goals of a MAC Protocol for Ad Hoc Wireless Networks. [7]

5 a) Describe about various types of hybrid routing protocols.   [8]
   b) Explain in detail about the source initiated routing protocols for adhoc networks.   [7]

6 a) What is a transport layer? How to Classify Transport Layer Solutions? [8]
   b) Explain the transport layer protocols in detail.   [7]

7 a) Explain about Sensor Tasking and Control.   [8]
   b) Explain in detail about Security in Ad Hoc Wireless Networks.   [7]

8 a) Explain the programming challenges in Wireless Sensor Networks.   [8]
   b) Using sensors how to automate a home? Explain it.   [7]
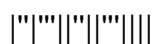
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R10

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time: 3 hours   **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) What are the major issues and challenges that need to be considered for designing
       adhoc wireless system?   [9]
   b)   Describe the Enabling Technologies for Wireless Sensor Networks.   [6]

2 a) Explain the optimization goals of Sensor Networks.   [7]

   b) Explain the merits and demerits of Sensor Networks.   [8]

3 a) What are the applications needed in a MANET?   [8]

   b) What is mobile ad-hoc network? What are the applications of MANET?   [7]

4 a) Discuss about the Contention Based MAC Protocols with Scheduling
       Mechanisms.   [7]
   b) Explain the any two MAC Protocols that use Directional Antennas.   [8]

5 a) Explain the difference between Proactive routing protocols and Reactive
       routing protocols.   [8]
   b) Explain the OLSR protocol in detail. Compare it with AODV protocol.   [7]

6 a) What are the issues designing in transport layer for adhoc networks?   [8]

   b) Describe the classification of transport layer and its solutions.   [7]

7 a) What are the issues and Challenges in Security Provisioning?   [8]

   b) Describe the attacks in Network Security.   [7]

8 a) Explain the Node- level software in detail.   [8]

   b) Describe in detail about the state centric programming.   [7]

Code No: **R42047**   **R10**

IV B.Tech II Semester Regular Examinations, April/May - 2014
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time : 3 hours   Max. Marks: 75
Answer any Five Questions
All Questions carry equal marks
*****

1   Define Wireless Sensor Networks? Explain in brief about the Applications of
     Wireless Sensor Networks?   [15]

2 a) Explain in brief about Single node Architecture?   [8]
   b) Explain in brief about energy Consumption of Sensor nodes?   [7]

3   Explain in brief about the Topology of Personal Area Networks?   [15]

4 a) Explain in brief about Five phase Reservation protocol?   [8]
   b) Explain in brief about the Issues in Designing a MAC protocol for Ad Hoc
       Wireless Networks?   [7]

5 a) Explain in brief about DSDV Routing Protocol?   [8]
   b) List out the advantages and disadvantages of CHGSR protocol?   [7]

6 a) Explain in brief about Ad hoc Transport Protocol?   [8]
   b) Explain in brief about TCP Bus?   [7]

7 a) Explain in brief about Clustering in WSN?   [8]
   b) Explain in brief about Network Security Requirements in WSN?   [7]

8 a) Explain in brief about smart metering Applications?   [8]
   b) Explain in brief about Node level simulators in WSN?   [7]

IV B.Tech II Semester Regular Examinations, April/May - 2014
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time : 3 hours | Max. Marks: 75

Answer any Five Questions
All Questions carry equal marks
*****

1   Define Wireless Sensor Networks? Explain in brief about the Advantages and Disadvantages in Wireless Sensor Networks?   [15]

2 a)   Explain in brief about Tiny OS and nesC?   [8]
   b)   Explain in brief about Design Principles of wireless sensor network?   [7]

3   Explain in brief about the Topology of Wide Area Networks?   [15]

4 a)   Explain in brief about Classifications of MAC Protocols?   [8]
   b)   Explain in brief about Real time MAC Protocol?   [7]

5 a)   Differentiate between Table –Driven Routing Protocols and On–Demand Routing Protocols?   [7]
   b)   Explain in brief about the Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks?   [8]

6 a)   Explain in brief about feedback based TCP?   [7]
   b)   Explain in brief about TCP with explicit Link failure Notification?   [8]

7 a)   Explain in brief about Secure Routing in Ad Hoc Wireless Networks?   [7]
   b)   Explain in brief about Time Synchronization in WSN?   [8]

8   List out and Explain in brief about the Applications of wireless sensor networks?   [15]

Code No: **R42047** **R10**

IV B.Tech II Semester Regular Examinations, April/May - 2014
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time : 3 hours   Max. Marks: 75

Answer any Five Questions
All Questions carry equal marks
*****

1   Define Wireless Sensor Networks ? Explain in brief about the Enabling Technologies for Wireless Sensor Networks?   [15]

2 a) Explain in brief about Requirements for WSN Service Interfaces?   [8]
   b) Define Gateway? Explain in brief about the need for Gateways?   [7]

3   Explain in brief about the Topology of Mobile Ad hoc Networks?   [15]

4 a) Explain in brief about the Design goals of a MAC Protocol for Ad Hoc Wireless Networks?   [8]
   b) Differentiate between Contention - Based Protocols with reservation and Scheduling Mechanisms?   [7]

5 a) Explain in brief about AODV Routing Protocol?   [8]
   b) Differentiate between DSR and TORA Routing Protocols?   [7]

6 a) Explain in brief about the Design Goals of a Transport Layer Protocol for Ad Hoc Wireless Networks?   [8]
   b) Explain in brief about Secure aware AODV Routing protocol?   [7]

7 a) Explain in brief about Topology Control in WSN?   [8]
   b) Explain in brief about Key Management in WSN?   [7]

8   Explain in brief about Wireless Sensor network tools?   [15]

Code No: **R42047**

R10

Set No. 4

IV B.Tech II Semester Regular Examinations, April/May - 2014
WIRELESS SENSOR NETWORKS
(Common to Electronics & Communication Engineering and Electronics & Computer Engineering)

Time : 3 hours   **Max. Marks: 75**
Answer any Five Questions
All Questions carry equal marks
*****

1   Define wireless Sensor network? Explain in brief about the challenges in
       designing a wireless Sensor network   [15]

2 a) Explain in brief about WSN to Internet communication   [8]
   b) Explain in brief about WSN Tunneling?   [7]

3   Explain in brief about hidden node and exposed node problem?   [15]

4 a) Explain in brief about Interleaved CSMA Protocol?   [8]
   b) Explain in brief about Directional MAC Protocols for Ad hoc wireless
       network?   [7]

5 a) Explain in brief about Fish eye state Routing protocol?   [8]
   b) Explain in brief about OLSR Routing protocol   [7]

6 a) Explain in brief about the Issues in Designing a Transport Layer Protocol for
       Ad Hoc Wireless Networks?   [8]
   b) Why does TCP not perform well in Ad hoc wireless network?   [7]

7 a) Explain in brief about Security in Ad Hoc Wireless Networks?   [8]
   b) Explain in brief about Sensor Tasking and Control?   [7]

8   Explain in brief about Node level Software platforms in Wireless Sensor
       Networks?   [15]