Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17EC3028** | **Duration :** | **3hrs** |
| **Sub. Name :** | **WIRELESS COMMUNICATION FOR SENSOR NETWORKS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Classify and investigate the various challenges faced by wireless sensor networks. | CO1 | 10 |
| b. | Time synchronization is vital in a sensor network. Why? Mention the causes of time sync issues and explain the methods to solve it. | CO3 | 10 |
| (OR) | | | | |
| 2. | a. | List the applications of wireless sensor networks. | CO1 | 10 |
| b. | Individual components of sensor node play a vital role in achieving energy efficiency. Justify. | CO1 | 10 |
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| 3. | a. | Zigbee/IEEE 802.15.4 mesh networks provide greater stability in changing conditions. How? | CO4 | 10 |
| b. | Summarize the desired properties of sensor data base and its performance metrics. | CO5 | 10 |
| (OR) | | | | |
| 4. | a. | Why traditional MAC protocols are not suitable for sensor networks. What are the reasons for power wastage in MAC? | CO3 | 10 |
| b. | Develop a sensor network model for forest fire detection in Siruvani hills. Use appropriate sensor nodes. | CO2 | 10 |
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| 5. | a. | Categorize the different types of queries made to sensor network database. | CO5 | 10 |
| b. | Compare and contrast centralized storage with in-network storage. | CO5 | 10 |
| (OR) | | | | |
| 6. | a. | In a sensor network deployed in a regular hexagonal pattern demonstrate that co-operation of sensors helps location tracking at network level. | CO5 | 10 |
| b. | Evaluate the usefulness of distance estimation methods. | CO5 | 10 |
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| 7. | a. | What is idle power management? How idle power management is achieved in ARM-SA 1100 processor and in Blue-tooth radio? | CO6 | 10 |
| b. | Formulate a State transitioning policy to achieve energy efficiency. | CO6 | 10 |
| (OR) | | | | |
| 8. | a. | Why both frequency and voltage reduction are required for active power management? | CO6 | 10 |
| b. | Illustrate DCF and power saving mode of IEEE 802.11. | CO6 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. |  | Evaluate the security architecture of cell based wireless sensor networks. | CO6 | 20 |