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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18CS3056** | **Duration :** | **3hrs** |
| **Sub. Name :** | **IoT APPLICATION AND COMMUNICATION PROTOCOL** | **Max. Marks :** | **100** |

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| **Q. No.** | **Sub Div.** | **Questions** | **Course Outcome** | **Marks** |
| **ANSWER ANY FIVE QUESTIONS (5 x 16 = 80 Marks)** | | | | |
| 1. | a. | Review different types of sensors and its applications. | CO1 | 8 |
| b. | Differentiate between Zigbee, Zwave, Bluetooth and BLE protocols. | CO2 | 8 |
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| 2. | a. | Justify the need of BLE in sensor networks. | CO2 | 4 |
| b. | Explain the working of Bluetooth protocol using smart health band application. | CO5 | 12 |
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| 3. | a. | Write an Arduino program to sense an obstacle at the distance of 10 metres and activate a buzzer if the distance is less. | CO4 | 8 |
| b. | Compare Arduino, raspberry pi and beagle bone controller boards. | CO4 | 8 |
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| 4. | a. | Discuss the protocol stack for mobile app for IoT applications. | CO3 | 10 |
| b. | Describe the working of Linkafy mobile app. | CO3 | 6 |
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| 5. |  | Discuss the features and characteristics of Cloud based IoT Platforms. | CO3 | 16 |
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| 6. | a. | Design a communication network for landmine detecting bot in military fields. | CO5 | 10 |
| b. | Justify the need for low power requirement for the above application. | CO2 | 6 |
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| 7. | a. | Compare Prototyping with production electronics. | CO3 | 8 |
| b. | Explain the PCB design and its workflow. | CO4 | 8 |
| **COMPULSORY QUESTION (1 x 20 = 20 Marks)** | | | | |
| 8. |  | Design a smart home automation system with the following considerations:  i. The sensors are working on optimal energy usage protocols.  ii. The collected data is stored and analyzed in the cloud.  iii. A mobile app controls the working of smart appliances.  With neat diagram, explain the modules of the smart automation system. | CO6 | 20 |