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# P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

**Eighth Semester, B.E. - Computer Science and Engineering**

**Semester End Examination; June - 2017**

**Internet of Things**

Time: 3 hrs

Max. Marks: 100

*Note: Answer FIVE full questions, selecting ONE full question from each unit.*

## UNIT - I

1. a. List the limitations of 802.15.4. 4
- b. Explain the Coordinated Sampled Listening (CSL). 10
- c. Explain any one access control methods for the network in 802.15.4. 6
- 2 a. Justify the statement: Power line is a shared media and coexistence is not an optional feature with respect to PLC. 10
- b. List the five classes of BAC net services. 10

## UNIT - II

- 3 a. Explain the structure of a Lon works packet. 10
- b. Give the data frame format of Lon works and also explain the link layer access and priority mechanism. 10
- 4 a. Explain KNX telegram format. 10
- b. Bring out the main features of Zigbee architecture. 10

## UNIT - III

- 5 a. Explain Z-wave controller node details. 10
- b. Explain the 4-layer model of M-bus architecture. 10
6. a. It is required to design an object model for metering applications. COSEM data model is one such model. Give the schematic of this data model and compare with Zigbee high level data model. 10
- b. Explain end-to-end security in DLMS/COSEM approach. 10

## UNIT - IV

- 7 a. Explain the structure of 6 LOW PAN header stacking and fragment header. 10
- b. Explain downward routes and multicast membership in RPL. 10
- 8 a. Compare Zigbee SEP.2.0 and REST. 10
- b. List the gateway capabilities with respect to reference points of ETSI. 10

## UNIT - V

- 9 a. Explain the need for the marginal cost of Electricity. 10
- b. Explain financial flows between RTE. 10
- 10a. Give the Analysis of smart distributed energy management for home. 10
- b. Analyse Electric vehicle charging case study. 10