**(3Hours)**

**[Total Marks: 80]**

N.B. **(1) Question no. 1 is compulsory.**
**(2) Answer any 3 question out of remaining questions.**
**(3) Assume suitable data if necessary.**
**(4) Illustrate your answers with neat sketches.**

| | | | |
|---|---|---|---|
| **Q1** | | Solve any 4 out of six | **20** |
| | **a** | Differentiate Between Traditional Design and Mechatronic Design | |
| | **b** | Give applications of Mechatronics System in Factory | |
| | **c** | Give the advantages of Micro-processor | |
| | **d** | Why is Hadoop used for Big data Analysis | |
| | **e** | What is cloud Computing and give its importance | |
| | **f** | Write a short note on HTTP. | |
| | | | |
| **Q2** | **a** | Draw the Hadoop Ecosystem and explain the various tools in short | **10** |
| | **b** | Give the various wireless Standardised protocols in IOT. | **10** |
| | | | |
| **Q3** | **a** | Explain the 8051 Micro-controller Architecture with a neat label diagram | **10** |
| | **b** | Give the role of Cloud Computing in IOT along with integration challenges | **10** |
| | | | |
| **Q4** | **a** | With a neat example explain how Arduino is beneficial for development of IOT devices | **10** |
| | **b** | What are Restful Principles and what do the key Principles of RESTful Design Include | **10** |
| | | | |
| **Q5** | **a** | What is the need for IOT and explain the layers of IOT | **10** |
| | **b** | Explain how Hadoop MapReduce can be used for Batch Data Analysis | **10** |
| | | | |
| **Q6** | | Choose and solve four out of the following six questions | **20** |
| | **a** | Give Key Challenging Areas for IOT | |
| | **b** | Give the Feature of Apache Oozie | |
| | **c** | Give advantages and Disadvantages of Mechatronic design | |
| | **d** | Differentiate between Cloud and Fog computing | |
| | **e** | What is the need for Standardized Protocols for IOT wireless technologies | |
| | **f** | Give the next evolution in IOT | |

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