

TIME:3Hrs

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 What role does Cloud Computing play in the context of IoT (Internet of Things)?
 - b What are the various applications of mechatronic system in industry?
 - c Why is there a need to standardize processes for wireless technologies?
 - d What is the significance and need for the Internet of Things (IoT)?
 - e Highlight the importance of using Hadoop in the processing of Big Data?
 - f Provide a brief overview of assembly-level programming as it relates to microprocessors and microcontrollers?
- Q2 a How would you differentiate between Traditional and Mechatronic design approaches? Can you elaborate on the integrated design issues commonly encountered in Mechatronics? 10
- b Write a program to add numbers like example 25 and 36 in 8051. 10
- Q3 a What are the advantages, disadvantages and limitations of Mechatronics? 10
- b Outline the challenges associated with integrating IoT with Cloud computing? 10
- Q4 a Explain and draw the Architecture of 8051 Micro-controllers. 10
- b Give the key challenging areas of IOT along with limitations. 10
- Q5 a Provide an overview of the Hadoop Ecosystem? 10
- b Provide a brief overview of RESTful principles? 10
- Q6 Solve **any 4** out of Six. 20
- a Write brief insights on Message Queuing Telemetry Transport?
 - b Explain overview of Apache Oozie?
 - c What are five instructions of the 8051 Micro-controller that you can explain?
 - d How do Cloud Computing and Fog Computing differ from each other?
 - e Write a brief explanation of the layers of the Internet of Things (IoT)? Explain with sketch.
 - f What are the limitations of Apache Spark?
