

Time 2½ hours

Total Marks: 75

N.B.: (1) **All** questions are **Compulsory**.(2) Make **suitable assumptions** where ever necessary and **state the assumption made**.(3) Answers to the **same questions** must be **written together** .(4) Numbers to the **right** indicates **marks**.(5) Draw **neat labeled diagrams** wherever **necessary** .(6) Use of **Non-programmable** calculators is **allowed**.**Q 1. Attempt any three of the following :**

15

- Define and explain the Internet of Things (IoT).
- What are the enchanted objects? Explain.
- Explain calm and ambient technology.
- What do you mean by affordances? Discuss the concept of good and bad design.
- Explain the TCP /IP protocol
- What is DNS? How does it works?

Q 2. Attempt any three of the following :

15

- Explain the process of prototyping in detail.
- Discuss the advantages and disadvantages of working with Open Source
- Discuss the trade- off between cost and ease of prototyping.
- What is Aurdino? Explain
- What are the two main electronic devices in prototyping embedded devices? Explain.
- What are microcontrollers? Explain.

Q 3. Attempt any three of the following :

15

- What is 3D printing? What is its use?
- Explain the sketch iterate and explore process in prototyping.
- How should one prepare for prototyping the physical design?
- What is an API? What do you mean by mashing up API?
- What is polling? Explain.
- What is scraping? Explain.

Q 4. Attempt any three of the following :

15

- Explain different types of memory
- What are libraries? Explain with examples
- Explain in detail the process of debugging the code for embedded devices.
- Define business model .Explain different factors in the definition.
- Write note on Venture Capital
- What is crowd funding? Explain

Q 5. Attempt any three of the following :

15

- How printed circuit boards are designed? Explain.
- Discuss the issues in scaling up the software for large scale IoT devices.
- Explain the categories while moving from prototyping to manufacturing.
- Explain privacy with respect to IoT devices in detail.
- Discuss the environmental issues associated with IoT devices.
- Discuss the human cost associated with the production of IoT devices.