

(2½ Hours)

[Total Marks: 75]

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt **any three** of the following: 15

- Define and explain the Internet of Things.
- List and explain the roles of people making IOT.
- Discuss the issue of Privacy in Internet of Things.
- What is manufactured normalcy field? Explain.
- What is DNS? How does it work?
- Define protocol. Explain the following application layer protocols: HTTP, HTTPS, SMTP and FTP.

2. Attempt **any three** of the following: 15

- What is sketching? Explain its role in prototyping.
- Discuss the tradeoffs between cost versus ease of prototyping.
- Discuss the Disadvantages of Open Source.
- With the help of an example explain the process of scaling up the electronics.
- Explain the following with respect to prototyping embedded devices: Processor Speed, RAM, Networking and Power Consumption.
- What are sensors and actuators explain in brief.

3. Attempt **any three** of the following: 15

- When choosing a laser cutter which two main features should be considered?
- List and explain non-digital methods or traditional techniques used while prototyping a physical form of a device.
- Explain the concept of repurposing/recycling with respect to prototyping physical design.
- What is Clockodillo? Explain how to solve the security issues of an API by Clockodillo?
- Define JSON and Remote Procedure Calls.
- Explain the designing a web application for Humans.

4. Attempt **any three** of the following: 15

- Define Memory Management. List and explain the types of Memory.
- Give the difference between Stack and Heap.
- Discuss the concept of debugging in detail.
- What do you mean by Venture Capital? Explain.
- Explain the concept of "From craft to mass production".
- Describe the hobby project and open source.

