(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**
a. Explain the components of Internet of Things.
b. Write a note on Calm and Ambient Technology.
c. What is MAC (Media Access Control) address? Explain.
d. Discuss the issue of Privacy in Internet of Things.
e. Explain the working of IP Protocol.
f. Write a note on DNS (Domain Name System).

2. **Attempt _any three_ of the following:** **15**
a. Write note on Sketching
b. Differentiate between open source and closed source.
c. Write note on Sensors and Actuators.
d. Write note on Raspberry Pi.
e. Discuss the factors we should consider when deciding to build Internet of Things device.
f. What are the disadvantages of Open source?

3. **Attempt _any three_ of the following:** **15**
a. Discuss the methods of 3D printing.
b. Write note on LASER Cutting
c. Explain the term Scraping.
d. What is Polling? Explain in brief
e. Write note on MQTT Protocol
f. What is CNC Milling? Explain.

4. **Attempt _any three_ of the following:** **15**
a Explain the different types of memories
b What is Debugging for Internet of Things device? Explain.
c Write note on Long tail of Internet
d Discuss the business model canvas for Internet of Things
e Explain how to achieve customization in Internet of Things devices.
f Explain the term Venture capital.

5. **Attempt _any three_ of the following:** **15**
a. What is Crowdsourcing? Explain.
b. Discuss the different environmental issues in Internet of Things
c. Explain common PCB (Printed Circuit Board) making techniques.
d. Discuss the phase of Testing in manufacturing of Internet of Thing devices.
e. Explain the important guidelines to deal with issue of security in Internet of Things.
f. Discuss the main goals of Open Internet of Things definition

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