

# 22679

**12425**

**03 Hours / 70 Marks**

Seat No. 

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- Instructions* –
- (1) All Questions are *Compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answer with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. **Attempt any FIVE of the following:** **10**
  - a) What is cloud computing.
  - b) Define middle-ware with example?
  - c) List the steps involved in the designing of an IOT system?
  - d) Explain role of cloud in IOT?
  - e) What are the different types of home automation?
  - f) Draw a physical design of IOT?
  - g) What is the difference between IP address and MAC address.  
Give four differences?

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) What are the challenges in IOT? Explain in detail with suitable example?
  - b) Explain the building blocks of an IOT device?
  - c) Explain RFID middle ware?
  - d) State the “Purpose and requirements specification” for IOT design methodology.
- 3. Attempt any THREE of the following:** **12**
- a) Explain IOT enabling technologies in detail?
  - b) Explain static and dynamic IP address assignment?
  - c) Explain functional view specification w.r.t. IOT design methodology?
  - d) How is Raspberry Pi is used in IOT? Explain in detail.
- 4. Attempt any THREE of the following:** **12**
- a) Explain the advantages and disadvantages of IOT in detail?
  - b) Explain device and component integration w.r.t. IOT any given design methodology.
  - c) Explain the following IOT cloud platforms for real time operations.
    - i) Amazon web service.
    - ii) Oracle
    - iii) Google
    - iv) IBM.
  - d) What are IOT devices? Explain the types and importance of IOT devices with suitable example?
  - e) Explain the smart home automation system in an IOT?

**5. Attempt any TWO of the following:****12**

- a) Explain IOT levels 3 and level 4 with neat diagram w.r.t. any IOT based application.
- b) Explain:
  - i) The difference between ICP/IP and UDP?
  - ii) How many layers does TCP/IP have and what are they? Explain in detail.
- c) “LED is to be blinked for 2 seconds” for a given problem statement, explain which types of Raspberry Pi interfaces are required?

**6. Attempt any TWO of the following:****12**

- a) What is a Raspberry Pi used for? What are the types of interfaces in Raspberry Pi? Explain in detail.
  - b) Draw and explain the block diagram of IOT based Greenhouse monitoring?
  - c) To make pollution free residential areas, IOT smoke detectors are installed, explain its working.
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