

**2111000104020002**  
**B.C.A. S.Y (Sem – IV)**  
**Examination October-2023**  
**Internet of Things (IoT)**

Seat No:

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**[Time: Three Hours]**

**[Max. marks: 70 ]**

- Instructions:**
1. Provide examples and diagrams wherever necessary.
  2. Figures to the right indicate full marks.

**Student's Signature**

**Q.1 Answer the following in detail. (Any seven)**

**14**

- 1) Is HTTP protocol suitable for network communication in IoT application? Justify your answer.
- 2) Differentiate between Arduino and Raspberry Pi.
- 3) Brief on Ultrasonic sensor and IR sensor.
- 4) What is the role of cloud and fog computing in vehicular IoT?
- 5) Why privacy and security is important for healthcare based IoT applications?
- 6) What is constrained node in terms of IoT device?
- 7) What is the role of communication functional block in an IoT system?
- 8) Differentiate between sensors and actuators.
- 9) What is the use of GPIO pins on Raspberry Pi?

**Q.2 Answer in detail. (Any three)**

**18**

- 1) What is IoT? What are its characteristics? Explain the characteristics in detail.
- 2) Discuss on IoT security issues, challenges, threats and the measures against them.
- 3) What an IoT device generally contains? Explain it using block diagram of an IoT device.
- 4) What are sensors? Explain different types of sensors according to their application.

**Q.3 Answer the following. (Any two)**

**14**

- 1) List out all communication models and explain publisher-subscriber (pub-sub) communication model in detail.
- 2) What is Arduino? Discuss on components of Arduino in detail with its Pinout diagram.
- 3) Write a detail note on lot enabling technologies.

**Q.4 Do as directed. (Any two)**

**14**

- 1) Compare IoT and M2M.
- 2) Write a details note on actuators, its types and characteristics.
- 3) Explain Push-Pull and Exclusive Pair communication model of IoT.

**Q.5 Do as directed.**

**10**

- A.** Design a case study to develop an IoT-based smart home. In the case study, you should include the requirement analysis of different components and justify their usability in the home.

**Or**

- A.** 1) Discuss in detail on IoT Architecture

**05**

- 2) Explain in brief various lot applications for Environment.

**05**