

Scheme – I

Seat No.						
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22679

Sample Question Paper

Program Name : Automation and Robotics

Program Code : AO

Semester : SIXTH

Course Title : Internet of Things [IoT]

Marks : 70

Time:3Hrs.

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following: - 10 Marks (5X2)

- (a) List any four characteristics of IoT.
- (b) Define middleware.
- (c) List the steps involved in the designing of an IoT system
- (d) List any 4 IoT devices.
- (e) State types of home automation.
- (f) Draw IoT functional block.
- (g) State Internet of transducers.

Q.2) Attempt any THREE of the following: - 12 Marks (3X4)

- (a) List IoT Communication Models. Explain any two of them.
- (b) Explain M2M architecture with a neat diagram.
- (c) State the “Purpose & Requirements Specification” for IoT design Methodology.
- (d) Explain the building blocks of IoT devices.

Q.3) Attempt any THREE of the following.

12 Marks (3X4)

- (a) Explain RFID middleware.
- (b) Explain static and dynamic IP address assignment.
- (c) Explain Functional view specification w.r.t., IoT design methodology.
- (d) Explain communication API's.

Q.4) Attempt any THREE of the following.

12 Marks (3X4)

- (a) Explain security challenges of IoT w.r.t lack of encryption, Insufficient testing and updating, IoT Malware and ransomware, IoT botnet aiming at cryptocurrency.
- (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) State and explain any four components which will be used on the Raspberry Pi 4 board for any given application.
- (e) Draw and explain the block diagram of IOT based Greenhouse Monitoring

Q.5) Attempt any TWO of the following.

12 Marks (2X6)

- (a) Explain IoT levels, 5 and level 6 with neat diagram w.r.t any IoT based application .
- (b) Differentiate IoT and M2M w.r.t., Connection type, Communication protocol, Data Sharing, Internet, Type of Communication and Scope.
- (c)
 - i) "LED is to be blinked for 2 secs" For a given problem statement, explain which types of Raspberry Pi interfaces are required..
 - ii) "Cloud is used for IoT", Explain the given statement.

Q.6) Attempt any TWO of the following.

12 Marks (2X6)

- a) Explain the function of a web server in IoT.
- b) Explain IoT based health and fitness monitoring.
- c) To make pollution free residential areas, IoT smoke detectors are installed. Explain its working.

Scheme – I

Sample Test Paper - I

Roll No.		
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22679

Program Name : Automation and Robotics
Program Code : AO
Semester : SIXTH
Course Title : Internet of Things [IoT]
Marks : 20

Time:1 Hour

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

08 Marks (4X2)

- a) List any four different IoT devices.
- b) State different types of IoT communication models.
- c) Draw service based IoT middleware.
- d) List classes of IP addressing with their IP address range.
- e) List the steps involved in IoT system design methodology.

Q.2 Attempt any THREE.

12 Marks (3X4)

- (a) Explain IoT Protocols with the help of a layer diagram.
- (b) List and explain functional block diagrams of IoT with suitable diagrams.
- (c) Draw and explain the WSN middleware architecture.
- (d) State the name of four pillars of IoT and explain any one.

Scheme – I

Roll No.		
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Sample Test Paper - II

22679

Program Name : Automation and Robotics
Program Code : AO
Semester : FIFTH
Course Title : Internet of Things [IoT]
Marks : 20

Time: 1 Hour

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

08 Marks(4X2)

- a) State the name of pins which are used in Raspberry Pi for SPI interface.
- b) Write a program for controlling / switching LEDs with Raspberry Pi.
- c) State the function of web application messaging protocol (WAMP).
- d) List different types of home automation.
- e) State the role of cloud computing in IoT.

Q.2 Attempt any THREE.

12 Marks(3X4)

- (a) Explain process specification for home automation IoT system with diagram.
- (b) State various peripherals / components of Raspberry Pi and explain any two.
- (c) “Turn on LED for 1 sec after every 2 seconds” For a given problem statement, list the frequently used commands on Raspberry Pi with its functions.
- (d) To reduce parking search traffic on the streets, IoT smart parking system is installed. Explain its working.