Department Of Computer Science and Engineering
Previous Question Papers

R18

Code No: 156DR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, August/September - 2024
FUNDAMENTALS OF INTERNET OF THINGS
(Common to CE, EEE, ME, EIE, MCT, CSD)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What are the different network topologies used in IoT networks?	[2]
b)	How does the MQTT protocol ensure reliable and efficient data transmission in IoT systems?	[3]
c)	Define Machine-to-Machine (M2M) communication.	[2]
d)	Differentiate between MQ-2 and MQ-6 sensors.	[3]
e)	List the key features of Python.	[2]
f)	How can cloud services be integrated with Raspberry Pi for IoT applications?	[3]
g)	What is the purpose of the GPIO pins on a Raspberry Pi?	[2]
h)	How does SDN separate the network architecture?	[3]
i)	How does cloud computing support IoT applications?	[2]
j)	How does the integration of IoT technologies enhance the functionality and efficiency of the Smart Grid?	[3]

PART – B

(50 Marks)

2.a) Discuss how scalability, interoperability, security, and connectivity are critical for the successful deployment and operation of IoT systems.
b) What are the different hardware components typically used in IoT devices? Explain. [5+5]

OR

3.a) Explain the various functional blocks of an IoT system.
b) What types of sensors are commonly used in IoT applications, and how do they work? [5+5]

4.a) Discuss the key components and architecture of an M2M communication system.
b) Describe the basic structure of an Arduino program (sketch), including setup and loop

functions. [5+5]

OR

5.a) Discuss how IoT builds upon the foundations of M2M and extends its capabilities with examples to illustrate the differences.

b) Discuss the process of integrating sensors and actuators with an Arduino board. [5+5]

6.a) Discuss the process of interfacing Raspberry Pi with basic peripherals.

b) Discuss the libraries and frameworks available in Python for IoT, such as "RPi.GPIO", "paho-mqtt", and "Adafruit". [5+5]

OR

7.a) Explain how Raspberry Pi can be used for IoT applications.

b) Describe the steps to set up a Raspberry Pi as an IoT hub. [5+5]

8.a) Discuss the benefits of SDN compared to traditional networking approaches.

b) What are the common security challenges in IoT, and how can SDN provide solutions to these challenges? [5+5]

OR

9.a) Discuss the application of SDN in the context of the IoT.

b) Explain the importance of data handling and analytics in IoT systems. [5+5]

10.a) Explain the advantages and disadvantages of cloud computing.

b) Discuss the architecture of a sensor-cloud system. [5+5]

OR

11.a) Explain the concept of connected vehicles and their role in the Internet of Things (IoT).

b) Define Industrial IoT (IIoT) and its impact on manufacturing and industrial processes. [5+5]

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Code No: 156DR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, February/March - 2022
FUNDAMENTALS OF INTERNET OF THINGS
(Common to CE, EEE, ME, CSE, EIE, IT, MCT)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Discuss the characteristics of IoT.
b) Explain how important are communication protocols when it comes to IoT? [5+10]

2.a) What is IoT? Explain evolutionary phases of the Internet.
b) Which protocol is used to link all the devices in the IoT? Explain in detail. [5+10]

3.a) Explain M2M service layer standardization.
b) Explain clearly, the procedure to interface an analog sensor with Arduino programming. [8+7]

4.a) What are the distributions supported by Raspberry Pi?
b) Write a Python program on Raspberry Pi to blink an LED. [7+8]

5.a) There are two models of Raspberry Pi, A and B. Which model is suitable for IoT applications? Justify your answer with necessary technical details by comparing the above two models.
b) How SDN can be used for various levels of IoT? [7+8]

6.a) Describe different Cloud Service Models.
b) Explain Data visualization and its importance in IoT. [7+8]

7.a) Discuss the role of Data Analytics in Internet of Things (IoT).
b) Construct the Design of Smart home with Raspberry Pi and other hardware devices with neat sketch. [7+8]

8.a) With a neat diagram, explain how actuators and sensors interact with physical world. Classify actuators based on energy type.
b) Explain Smart city security architecture. [7+8]

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Code No: 156DR **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, July - 2023
FUNDAMENTALS OF INTERNET OF THINGS
(Common to CE, EEE, ME, EIE, MCT)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What are the characteristics of IoT?	[2]
b)	What are the IoT Protocols?	[3]
c)	What are the trends in smart objects?	[2]
d)	Discuss about Actuators?	[3]
e)	What is the difference between List and Tuple?	[2]
f)	What are the Raspberry Pi operating systems?	[3]
g)	What are the key components of SDN?	[2]
h)	What are the characteristics of Big Data?	[3]
i)	What are the cloud computing technologies?	[2]
j)	What are the advantages of cloud computing?	[3]

PART – B

(50 Marks)

2.a)	Describe about the applications of IoT.	
b)	Write a short note on sensor networks.	[5+5]
	OR	
3.	Briefly explain about Functional blocks of IoT.	[10]
4.a)	Briefly explain the differences between IoT and M2M.	
b)	Write a short note on Arduino programming.	[5+5]
	OR	
5.	Which communication protocols are used for M2M local area networks? Explain in detail.	[10]
6.a)	Briefly explain about variable in Python.	
b)	Write a Python program to find largest of three numbers.	[5+5]
	OR	
7.	Write a procedure for capture Image using Raspberry Pi.	[10]
8.	Briefly explain about Software Defined Network architecture.	[10]
	OR	
9.	Briefly explain the SDN for IoT architecture.	[10]

10. a) Discuss about History of cloud computing.
    b) Write a short note on cloud service models. [5+5]

OR

11. a) Describe about the components of cloud computing architecture.
    b) Write a short note private cloud. [5+5]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, March - 2024
FUNDAMENTALS OF INTERNET OF THINGS
(Common to CE, EEE, ME, CSE, EIE, MCT, CSBS, CE(SE), CSE(CS), CSE(AI&ML), CSE(DS), CSE(IOT))

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What is CoAP?	[2]
b)	Describe HTTP request methods and actions.	[3]
c)	What are IoT components?	[2]
d)	Explain about M2M communications.	[3]
e)	What is Raspberry Pi?	[2]
f)	What are string methods in Python?	[3]
g)	What are advantages of SDN?	[2]
h)	What are Hadoop configuration files? Explain.	[3]
i)	What is cloud computing?	[2]
j)	Explain about sensor-cloud.	[3]

PART – B

(50 Marks)

2.a)	What are characteristics of IoT? Explain in detail.	
b)	Explain about communication protocols.	[5+5]
	OR	
3.a)	Discuss about IoT communication models.	
b)	What are things in IoT? Explain in detail.	[5+5]
4.	Discuss in detail about integration of sensor and actuators with Arduino in IoT.	[10]
	OR	
5.	What are differences between M2M and IoT? Explain.	[10]
6.	Describe Interfacing Raspberry Pi with basic peripherals.	[10]
	OR	
7.	Explain about functions and modules in Python programming.	[10]
8.	What is SDN? Explain in detail about SDN for IoT.	[10]
	OR	
9.a)	Explain about MapReduce job execution workflow.	
b)	Discuss about Oozie workflows for IoT data analysis.	[5+5]
10.	Describe the use of IoT in health care.	[10]
	OR	
11.	Discuss about smart irrigation and green house control using IoT.	[10]

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