



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad -500043

## EMBEDDED SYSTEMS

### TUTORIAL QUESTIONBANK

Course Name	<b>INTERNET OF THINGS</b>			
Course Code	BESB12			
Programme	M.Tech			
Branch	Embedded Systems			
Semester	II			
Regulation	IARE - R18			
Course Structure	Lectures	Tutorials	Practicals	Credits
	3	-	-	3
Course Coordinator	Mrs. Swathi Kambhampati			
Course Faculty	Mrs. Swathi Kambhampati			

### OBJECTIVES

The course covers the concepts of communication technologies, computer networks, cloud computing, and terms including the basic components of hardware and software. This course helps the students in gaining the knowledge about the sensor devices, different communication technologies like RFID, Bluetooth, and programming microcontroller for sending data to cloud. This course helps to undertake future courses that assume this course as a background in setting up cloud for different applications using IoT.

S. No	Questions	Blooms Taxonomy Level	Course Learning Outcome
<b>UNIT – I</b>			
<b>INTRODUCTION</b>			
<b>PART – A (SHORT ANSWER QUESTIONS)</b>			
1	What is IoT? Write short notes on IoT.	Remember	BESB12.01
2	List any four characteristics of IoT.	Remember	BESB12.02
3	State the importance of IoT.	Remember	BESB12.01
4	What are the types of RFID tags?	Remember	BESB12.03
5	State about the importance of Thing in IoT.	Remember	BESB12.02
6	Write short note on Bluetooth.	Understand	BESB12.03
7	What are design factors IoT ?	Remember	BESB12.02
8	What are the interfaces of WSN?	Remember	BESB12.03
9	Define link layer protocols in IoT.	Remember	BESB12.02
10	State any four domain specific IoT applications.	Remember	BESB12.02
<b>PART – B (LONG ANSWER QUESTIONS)</b>			
1	Discuss the characteristic of IoT and explain.	Create	BESB12.01
2	What are applications of IoT and explain?	Remember	BESB12.02
3	Demonstrate the physical design of IoT with Things of IoT and protocols of IoT.	Understand	BESB12.02
4	Write the logical design of IoT with communication models.	Understand	BESB12.02
5	Explain the IoT communication APIs and its importance.	Understand	BESB12.02

6	Discuss about any three IoT enabling technologies.	Create	BESB12.02
7	What are different topologies of Bluetooth, explain in detail?	Remember	BESB12.03
8	Explain about mobile internet ?	Understand	BESB12.03
9	Discuss about wired communication .	Create	BESB12.03
10	Define the various domain specific of IoT and explain with home automation.	Remember	BESB12.03

**UNIT-II  
PROGRAMMING THE MICROCONTROLLER FOR IOT**

**PART – A (SHORT ANSWER QUESTIONS)**

1	What is BSP?	Remember	BESB12.04
2	What are the common characteristics of communication appliances?	Remember	BESB12.04
3	Write short notes on RTOS.	Understand	BESB12.04
4	Explain device issues in embedded communications?	Understand	BESB12.04
5	What are the limitations of strict layering?	Remember	BESB12.05
6	Define module and task.	Remember	BESB12.04
7	Differentiate the terms process and task.	Analyze	BESB12.04
8	What is task scheduling?	Remember	BESB12.05
9	Define stateful and stateless protocols.	Remember	BESB12.05
10	Explain about table resizing?	Understand	BESB12.05

**PART – B (LONG ANSWER QUESTIONS)**

1	Explain about memory issues in embedded communications?	Understand	BESB12.04
2	Discuss about hardware and software partitioning.	Create	BESB12.04
3	What are the guidelines for organizing the modules and tasks in a communications system?	Remember	BESB12.04
4	Outline the steps in PDU preprocessing of an IP packet.	Understand	BESB12.05
5	Discuss about software partitioning.	Create	BESB12.04
6	What are the challenges in CLI based router management?	Remember	BESB12.05
7	Explain in detail about protocol implementation?	Understand	BESB12.05
8	What is sequence of boot configuration?	Remember	BESB12.05
9	Explain table access routines?	Understand	BESB12.05

**UNIT-III  
RESOURCE MANAGEMENT IN THE INTERNET OF THINGS(IOT)**

**PART – A (SHORT ANSWER QUESTIONS)**

1	What is Clustering?	Remember	BESB12.06
2	Define hard and soft clustering?	Remember	BESB12.06
3	What is data synchronization?	Remember	BESB12.06
4	What are software agents?	Remember	BESB12.06
5	What are the properties of software agents?	Remember	BESB12.06

**CIE-II**

6	What is the role of IoT for increased agility and autonomy?	Remember	BESB12.07
7	What are different types of Network Architectures?	Remember	BESB12.07
8	Explain Partitioned Architectures?	Understand	BESB12.07
9	Define the terms agility and autonomy.	Remember	BESB12.07
10	What is data consistency?	Remember	BESB12.07

**PART – B (LONG ANSWER QUESTIONS)**

1	Explain data synchronization techniques?	Understand	BESB12.06
2	What is clustering principle in IOT?	Remember	BESB12.06
3	Explain the role of context in clustering?	Understand	BESB12.06
4	Discuss about design guidelines for development of clustering algorithms.	Create	BESB12.06
5	Explain Software Agents for Object Representation?	Understand	BESB12.06

**CIE-II**

6	Discuss about data synchronization in internet of things?	Create	BESB12.07
7	What are the Technical Requirements for Satisfying the New Demands in Production Logistics?	Remember	BESB12.07
8	Where will the software agents work?		BESB12.07
9	Explain data synchronization requirements for internet of things?	Understand	BESB12.07
10	Explain the evolution from the RFID based EPC network to an agent based Internet of Things?	Understand	BESB12.07

**UNIT - IV**  
**BUSINESS MODELS FOR THE INTERNET OF THINGS**

**PART - A (SHORT ANSWER QUESTIONS)**

1	What is the meaning of DiY in the network society?	Remember	BESB12.08
2	Differentiate types of DiY-ers?	Analyze	BESB12.08
3	Define the term Ontology.	Remember	BESB12.09
4	What is Suggested Upper Merged Ontology (SUMO)?	Remember	BESB12.09
5	Explain the use of Ontology based search?	Understand	BESB12.09
6	What is semantic web?	Remember	BESB12.09
7	What are different types of Ontologies?	Remember	BESB12.09
8	What is EURIDICE?	Remember	BESB12.09
9	Describe data semantics.	Evaluate	BESB12.08
10	What are the components in semantic web service framework?	Remember	BESB12.08

**PART - B (LONG ANSWER QUESTIONS)**

1	Explain about DiY connection in internet of things?	Understand	BESB12.08
2	What are different types of call outs? Explain in detail?	Remember	BESB12.08
3	Explain about semantic interoperability for DiY creation?	Understand	BESB12.08
4	What are different types of middleware technologies needed for DiY internet of things?	Remember	BESB12.08
5	Explain the application of Ontology engineering in the Internet of Things?	Understand	BESB12.09
6	Discuss about web process life cycle and semantics.	Create	BESB12.09
7	Explain the process of Ontology development?	Understand	BESB12.09
8	Explain the architecture of EURIDICE?	Understand	BESB12.09
9	What is the role of IoT in EURIDICE intelligent cargo?	Remember	BESB12.09
10	What is the core objective of DiY? Explain with examples?	Remember	BESB12.08

**UNIT-V**  
**FROM THE INTERNET OF THINGS TO THE WEB OF THINGS**

**PART - A (SHORT ANSWER QUESTIONS)**

1	Explain real time web of things?	Understand	BESB12.10
2	What are the challenges in finding and describing smart things in web of things?	Remember	BESB12.10
3	What are representing resources in RESTful smart things design?	Remember	BESB12.10
4	Discuss verbs of HTTP?	Create	BESB12.10
5	Define content negotiation?	Remember	BESB12.11
6	What are status codes?	Remember	BESB12.11
7	Define web hooks.	Remember	BESB12.11
8	What is the advantage of RESTful model?	Remember	BESB12.10
9	What is cloud?	Remember	BESB12.10

<b>PART – B (LONG ANSWER QUESTIONS)</b>			
1	Explain the HTTP methods to interact with resources?	Understand	BESB12.10
2	What are the steps in designing RESTful smart things?	Remember	BESB12.10
3	How to find and describe smart things in web of things?	Remember	BESB12.10
4	Explain the evolution of web of things from internet of things?	Understand	BESB12.11
5	Explain modeling functionality of RESTful things?	Understand	BESB12.10
6	Explain real time web of things with example?	Understand	BESB12.11
7	Develop elderly monitoring system in Iot domain.	Apply	BESB12.11
8	Explain about Web-enabling Constrained Devices?	Understand	BESB12.11
9	Explain the process of setting up cloud and sending data from microcontroller to cloud?	Understand	BESB12.11
10	Develop e-health sensor platform using IoT.	Apply	BESB12.11

Prepared by

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**HOD, ECE**