INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

ELECTRONICS AND COMMUNICATION ENGINEERING

TUTORIAL QUESTION BANK

Course Name	:	INTERNET OF THINGS
Course Code	:	BES006
Class	:	I - M. Tech
Branch	:	EMBEDDED SYSTEMS
Year	:	2017 – 2018
Course Coordinator	:	Dr. M.RAMESH BABU, Professor ,ECE
Course Faculty	:	Shashikanth Reddy Assistant Professor

OBJECTIVES

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited.

In line with this, Faculty of Institute of Aeronautical Engineering, Hyderabad has taken a lead in incorporating philosophy of outcome based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

COURSE OBJECTIVES:

At the end of the course, the students will be able to:

    i.   Learn the basic issues, policy and challenges in the Internet
    ii.   Understand the components and the protocols in Internet
    iii.   Build a small low cost embedded system with the internet
    iv.   Understand the various modes of communications with internet
    v.   Learn to manage the resources in the Internet
    vi.   Deploy the resources into business
    vii.   Understand the cloud and internet environment

COURSE LEARNING OUTCOMES:

Students, who complete the course, will have demonstrated the ability to do the following:

CBES006.01	Identify and analyze the constraints and characteristics of processor architectures, Hardware, software partitioning distributed system..
CBES006.02	Understand the interfacing concept with memory subsystem organization and input/output subsystem organization.
CBES006.03	Understand instruction types, addressing modes and their formats in the assembly language programs.
CBES006.04	Describe the instruction set architecture design for relatively simple microprocessor or Central Processing Unit.
CBES006.05	Understand the typical computer hardware and software components and computer technology trends..
CBES006.06	Understand the register transfer languages and micro operations involved in bus and memory transfers.
CBES006.07	Understand the future developments in emulation and prototyping architecture specialization techniques, system communication infrastructure target architectures.
CBES006.08	Understand the connections among the circuits and the functionalities in the hardwired control unit.

CBES006.09	Describe the various phases involved in the instruction cycle viz. fetching, decoding, reading effective address and execution of instruction.
CBES006.10	Apply the practical consideration in a compiler development environment.
CBES006.11	Classify the various instructions formats to solve the arithmetic expressions in different addressing modes.
CBES006.12	Understand the functionality of various instruction formats for writing assembly language programs.
CBES006.13	Describe the implementation of fixed point and floating point addition, subtraction operations.
CBES006.14	Understand the concept of memory hierarchy and different typed of memory chips.
CBES006.15	Describe various modes of data transfer between CPU and I/O devices
CBES006.16	Analyze the level specification, design representation for system level synthesis system design-I and design-II.
CBES006.17	Describe the hardware organization of associate memory and understand the read and write operations
CBES006.18	Describe the parallel processing concept with multiple functional units.
CBES006.19	Understand the multiprocessor concept with system bus structure and the concept of inter processor communication and synchronization
CBES006.20	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
CBES006.21	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change
CBES006.22	Possess the knowledge and skills to design advanced computer architecture for current industry requirements.

TUTORIAL QUESTION BANK

UNIT-I		
INTRODUCTION OF IOT		
PART – A (Short Answer Questions)		

S. No	Questions	Blooms Taxonomy Level	Course Outcome
1.	Define an Internet of Things?	Knowledge	Remember
2.	Explain the Phased approach of Internet of things?	Knowledge	Understand
3.	What is the necessity of Security and Privacy of IOT?	Knowledge	Remember
4.	Identify the Challenges and issues of an IOT?	Understand	Understand
5.	Describe various Communication Modules of IOT?	Knowledge	Understand
6.	List out Various components in IOT?	Knowledge	Remember
7.	Describe different communication technologies in an IOT?	Create	Understand
8.	Explain phenomenon of RF- links and mobile internet in IOT?	Knowledge	Remember
9.	Discuss about Wired Communication in IOT?	Understand	Understand
10	Define the concept of security and privacy IOT?	Understand	Knowledge

PART – B (Long Answer Questions)		

S. No	Questions	Blooms Taxonomy Level	Course Outcome
1.	Identify the necessity of Security and Privacy of IOT	understand	Remember

S. No	Questions	Blooms Taxonomy Level	Course Outcome
2.	Describe various Communication Modules of IOT?	Understand	Understand
3.	List out various Challenges and issues of IOT?	Knowledge	Remember
4.	Explain the Various components in IOT?	Knowledge	Understand
5.	Describe different communication technologies in IOT?	Understand	Understand
6.	Elaborate briefly about the phased approach of IOT?	Understand	Remember
7.	Discuss about Wired Communication in IOT?	Knowledge	Understand
8.	Explain about RF- links and mobile internet in IOT?	Knowledge	Remember

UNIT-II
PROGRAMMING THE MICROCONTROLLER OF IOT
PART – A (Short Answer Questions)

S. No	Questions	Blooms Taxonomy Level	Course Outcome
1.	Explain the value of Eco- system in an IOT?	Knowledge	Remember
2.	Describe the Embedded Communication software in an IOT?	Understand	Understand
3.	Differentiate Buffer and Timer management in an IOT?	Knowledge	Remember
4.	Distinguish CLI based and HTTP based management in an IOT?	Knowledge	Understand
5.	Differentiate Boot and Post Boot configuration in an IOT environment?	Understand	Understand
6.	Sketch the design of Agent to protocol interface in an IOT?	Knowledge	Remember
7.	Describe Protocol software and table access routines in an IOT?	Knowledge	Understand
8.	Illustrate briefly how device to manager communication is possible in IOT?	Understand	Remember
9	Classify the various architectures used in IOT environment?	Understand	Remember

PART – B (Long Answer Questions)

S. No	Questions	Blooms Taxonomy Level	Course Outcome
1.	Distinguish CLI based and HTTP based management in an IOT?	Knowledge	Remember
2.	Describe Protocol software and table access routines in an IOT?	Understand	Understand
3.	Differentiate Buffer and timer management in an IOT?	Knowledge	Remember
4.	Explain the necessity of eco-system in an IOT?	Knowledge	Understand
5.	Illustrate briefly how device to manager communication possible in IOT?	Understand	Understand
6.	Describe the embedded communication software in an IOT?	Knowledge	Remember
7.	Differentiate boot and post boot configuration in an IOT environment?	Knowledge	Understand
8.	Sketch the design of agent to protocol interface in an IOT?	Understand	Remember

UNIT-III

RESEARCH MANAGEMENT IN IOT			
RESOURCE MANAGEMENT IN IOT			
PART – A (Short Answer Questions)			
S. No	**Questions**	**Blooms Taxonomy Level**	**Course Outcome**
1.	Explain the Evolution of RFID-based EPC Network to Agent based IOT?	Knowledge	Remember
2.	What are the agents for the behavior of objects in IOT?		Understand
3.	Describe various types of networking architectures in an IOT?		Remember
4.	Synthesize the data synchronization of an IOT?	Knowledge	Understand
5.	Discuss about the Software agents of object representation in and IOT?	an IOT?	Understand
6.	What are the technical requirements to satisfy in new production of IOT?	Knowledge	Remember
7.	List out the Clustering principles of an IOT architecture?	Knowledge	Understand
8.	Define the concept of agility and autonomy of an IOT?	Understand	Remember
9.	Discuss about Enabling Autonomy and Agility of an IOT?	Knowledge	Understand

PART - B (Long Answer Questions)			
PART - B (Long Answer Questions)			
S. No	**Questions**	**Blooms Taxonomy Level**	**Course Outcome**
1.	Explain briefly about the Clustering principles of IOT architecture?	Knowledge	Remember
2.	Describe various types of networking architectures in an IOT?		Understand
3.	Illustrate briefly about Enabling Autonomy and Agility of an IOT?		Remember
4.	Explain the Evolution of RFID-based EPC Netwtork to Agent based IOT?	Knowledge	Understand
5.	Elaborate about Clustering and data synchronization of an IOT?	Understand	Understand
6.	Explain the fundamental concepts of agility and autonomy of an IOT?	Knowledge	Remember
7.	Describe the Software agents for the behaviour of objects in an IOT?	Knowledge	Understand
8.	Classify the agents for the behavior of objects in IOT?	Knowledge	Remember
9.	Explain the technical requirements to satisfy in new production of IOT	Understand	Understand

UNIT-IV
UNIT-IV
BUSINESS MODELS FOR THE INTERNET OF THINGS
PART – A (Short Answer Questions)

S. No	Questions	Blooms Taxonomy Level	Course Outcome
1	Elaborate the meaning of Di-Y in the Network society of IOT?	Knowledge	Remember
2	Explain about the Sensor-actuator Technologies and Middleware as a Basis for a Di y service creation Framework?	Understand	Understand
3	What do you mean by Device integration and business impact in an IOT?	Knowledge	Remember
4	Discuss the Middleware Technologies Needed for a Di-Y 32 in an IOT?	Knowledge	Understand
5	Describe the Semantic Interoperability as a Requirement for Di-Y	Understand	Understand
6	Explain the need of Ontology in IOT?	Knowledge	Remember
7	Illustrate the need of semantic web technology in IOT?	Knowledge	Understand
8	Discuss the Context of EURIDICE in an IOT?	Knowledge	Remember
9		Understand	Understand

PART – B (Long Answer Questions)			
S. No	Questions	Blooms Taxonomy Level	Course Outcome
1.	Explain the meaning of Di-Y in the Network society of IOT?	Knowledge	Remember
2.	Describe the Sensor-actuator Technologies and Middleware as a Basis for a Di-Y Service Creation Framework?	Understand	Understand
3.	Elaborate the need of Middleware Technologies Needed for a Di-Y 32 in an IOT?.	Knowledge	Remember
4.	Classify various Middleware Technologies Needed for a Di-Y 32 in an IOT?	Knowledge	Understand
5.	Describe the semantic Interoperability as a Requirement for Di-Y 32 Creation.	Knowledge	Remember
6.	Explain the Application of Ontology Engineering in IOT?	Understand	Understand
7.	Describe the need of semantic web technology and business impacting IOT?	Knowledge	Remember
8.	Explain the architecture of EURIDICE in IOT?	Understand	Understand
9.	List out Various software agents in an IOT?	Understand	Remember
10.			
UNIT-V			
FROM THE INTERNET OF THINGS TO WEB OF THINGS			
PART – A (Short Answer Questions)			
S. No	Questions	Blooms Taxonomy Level	Course Outcome
1.	Design REST -full smart things of an IOT?	Knowledge	Remember

S.No	Question	Knowledge	Course Outcome
2.	Explain various Webs enabled constrained devices in IOT?	Understand	Understand
3.	What is the necessity of Future web of things in an IOT?	Knowledge	Remember
4.	Sketch the Set up of cloud environment in an IOT?	Knowledge	Understand
5.	Identify the purpose of resource oriented architecture in an IOT?	Understand	Remember
6.	How data send from micro controller to cloud in an IOT?	Knowledge	Understand
7.	Discuss Case study of Open Source e-Health sensor platform?	Knowledge	Remember
8.	Explain briefly about case study of Be Close Elderly monitoring?	Knowledge	Understand
9.	Explain the concept of data synchronization used in IOT?		
10.			

PART - B (Long Answer Questions)			
S. No	Questions	Blooms Taxonomy Level	Course Outcome
1.	Design the architecture of REST –full smart things of an IOT?.	Knowledge	Understand
2.	Explain briefly about Web enabled constrained devices in IOT?	Understand	Remember
3.	Describe the necessity of Future web of things in an IOT?	Knowledge	Understand
4.	Elaborate the necessity of Resource oriented architecture in an IOT?	Knowledge	Remember
5.	Explain the Set up of cloud environment in an IOT?	Understand	Understand
6.	Synthesize how data send from micro controller to cloud in an IOT?	Knowledge	Remember
7.	Describe briefly about case study of Open source e-Health sensor Platform?.	Knowledge	Understand
8.	Explain briefly about case study of Be Close Elderly monitoring?	Knowledge	Remember
9.	Summarize the set up from micro controller to cloud in IOT?	Understand	Understand
10.	Desribe the case study of be close-elderly monitoring in an IOT?	Knowledge	Remember

Prepared by   : SHASHIKANTH REDDY, Assistant Professor

HOD, ECE