HallTicketNo [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]   Question Paper Code:ACS510

INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal, Hyderabad - 500 043

| MODEL QUESTION PAPER −I |

B.Tech VI Semester End Examinations, May -2019
Regulation: R16
INTERNET OF THINGS
(CSE / IT)

Time:3Hours   **Max Marks:70**

Answer any ONE question from each Unit
All questions carry equal marks
All parts of the question must be answered in one placeonly

UNIT – I

1 a) Describe the characteristics of IoT and physical design of IoT with interoperable communications protocols.   [7M]

   b) Demonstrate the logical design of IoT with communication blocks and communication models.   [7M]

2 a) Explain IoT enabling technologies with home automation, smart cities and energy domains.   [7M]

   b) Illustrate various IoT levels with neat diagram and differentiate the IoT level2 with IoT level5.   [7M]

UNIT – II

3 a) Compare thedifferences between IoT and M2M in detail. And also discuss about communication protocols, hardware, software, and data collection analysis techniques.   [7M]

   b) Explain Software Defined Networking (SDN) with architecture and discuss various key elements with neat sketch.   [7M]

4 a) Describe the network function virtualization (NFV) of IoT with NFV infrastructure and NFV Management Orchestration.   [7M]

   b) Explain in detail about the design of Network Configuration Protocol (NETCONF) with YANG generic approach.   [7M]

UNIT – III

5 a) Explain the various stages of IoT architecture and compare the differences of all the stages.   [7M]

   b) Demonstrate the IoT architecture reference model (ARM) with neat diagram and explain the IoT-A tree of architectural reference building blocks.   [7M]

6 a) Discuss in detail about various IoT data types and data structures with example by using python.   [7M]

   b) Explain briefly about   [7M]
       i)   Control flow
       ii) Packages
       iii) File handling ofIoT.

UNIT –IV

7	a)	What are the various building blocks of IoT and discuss it with sensing, actuation and communication, analysis process.	[7M]
	b)	Explain briefly about the Raspberry Pi with Linux and Raspberry Pi interfaces with an example.	[7M]

8	a)	Discuss Raspberry Pi GPIO with Interfacing LED and switch with Raspberry Pi.	[7M]
	b)	Write short notes of Raspberry Pi other devices of	[7M]

         i)   pcDuino,
        ii) BeagleBone
       iii) Black,Cubieboard.

UNIT –V

9	a)	What is WAMP protocol? Explain about its concepts of transport, RPC model client and RPC modelrouter.	[7M]
	b)	Explain briefly about the IoT application with Amazon Auto Scaling by using Python Example.	[7M]

10	a)	Explain about service and deployment models used in IoT Cloud? Write in detail about various API's used in IoT cloud?	[7M]
	b)	What is Django architecture? Discuss in detail about the various WEB application frameworks.	[7M]

COURSEOBJECTIVE
The course should enable the students to

I	Understand the architecture of Internet of Things and connected world.
II	Explore on use of various hardware and sensing technologies to build IoT applications.
III	Illustrate the real time IoT applications to make smart world.
IV	Understand the available cloud services and communication API's for developing smart cities.

COURSE OUTCOMES (COs):

CO 1	Understand the architecture of Internet of Things and connected world.
CO 2	Explore on use of various hardware and sensing technologies to build IoT applications.
CO 3	Illustrate the real time IoT applications to make smart world.
CO 4	Understand the available cloud services and communication API,,s for developing smart cities.

COURSE LEARNINGOUTCOMES

ACS510.01	Understand and intuition of the whole process line of extracting knowledge from data about the Internet of Things.
ACS510.02	Deep insight in one of the specializations within the network, depending on the study and the choice of the concepts of IoT.
ACS510.03	Solid knowledge in a broad range of methods based on design and implementation of IoT in network performance, analysis and problem solving with design of networks.
ACS510.04	Experience in deriving theoretical properties of methods involved in IoT.
ACS510.05	Design and implementation/modification of methods involved in IoT.
ACS510.06	Describe what IoT is and the skill sets needed to be a network analysis.
ACS510.07	Use IoT design to carry out basic statistical modeling and analysis.
ACS510.08	Motivate and explain the trade-offs in IoT tool technique design and analysis of applications with IoT.
ACS510.09	Understanding the significance of various models used in IoT.
ACS510.10	Describe the Transport layer protocols and how its uses in IoT
ACS510.11	Apply basic IoT algorithms for predictive network performance.
ACS510.12	Understand basic terms what security issues. Identify key distribution methods.
ACS510.13	Identify common approaches used for Feature Generation of IoT.
ACS510.14	Create effective results by using various techniques in IoT application.
ACS510.15	Analyze the importance of IoT applications and work effectively as individual or teams on various IoT projects.

MAPPING OF SEMESTER END EXAMINATION TO COURSE LEARNING OUTCOMES

SEE Question No			Course Learning Outcomes	Course Outcomes	Blooms Taxonomy Level
1	a	ACS510.02	Deep insight in one of the specializations within the network, depending on the study and the choice of the concepts of IoT.	CO1	Understand
	b	ACS510.03	Solid knowledge in a broad range of methods based on design and implementation of IoT in network performance, analysis and problem solving with design of networks.	CO1	Remember
2	a	ACS510.01	Understand and intuition of the whole process line of extracting knowledge from data about the Internet of Things.	C01	Remember
	b	ACS510.03	Solid knowledge in a broad range of methods based on design and Implementation of IoT in network performance, analysis and problem solving with design of networks.	CO1	Remember
3	a	ACS510.05	Design and implementation/modification of methods involved in IoT.	C02	Understand
	b	ACS510.06	Describe what IoT is and the skill sets needed to be a network analysis.	CO2	Remember
4	a	ACS510.04	Experience in deriving theoretical properties of methods involved in IoT.	CO2	Understand
	b	ACS510.06	Describe what IoT is and the skill sets needed to be a network analysis.	CO2	Remember
5	a	ACS510.08	Motivate and explain trade-offs in IoT tool technique design and analysis of applications with IoT.	CO3	Remember
	b	ACS510.07	Use IoT design to carry out basic statistical modeling and analysis.	CO3	Remember
6	a	ACS510.09	Understanding the significance of various models used in IoT.	CO3	Understand
	b	ACS510.09	Understanding the significance of various models used in IoT.	CO3	Remember
7	a	ACS510.11	Apply basic IoT algorithms for predictive network performance.	CO4	Remember
	b	ACS510.10	Describe the Transport layer protocols and how its uses in IoT	CO4	Remember
8	a	ACS510.11	Apply basic IoT algorithms for predictive network performance.	CO4	Understand
9	a	ACS510.14	Create effective results by using various techniques in IoT application.	CO4	Understand
	b	ACS510.13	Identify common approaches used for Feature Generation of IoT.	CO4	Remember
10	a	ACS510.14	Create effective results by using various techniques in IoT application.	CO4	Understand
	b	ACS510.15	Analyze the importance of IoT applications and work effectively as individual or teams on various IoT projects.	CO4	Remember

Signature ofCourse Coordinator   **HOD, CSE**