Sample Question Format
(For all courses having end semester Full Mark=50)

KIIT Deemed to be University
Online End Semester Examination(Autumn Semester-2020)

Internet of Things IT 4021 **Applicable to Courses:B Tech(CSE/IT)**

Full Marks=50 **Time:2 Hours**

SECTION-A(Answer All Questions. Each question carries 2 Marks)

Time:30 Minutes
(7×2=14 Marks)

Question No	Question Type (MCQ/SAT)	Question	CO Mapping	Answer Key (For MCQ Questions only)
Q.No:1	MCQ	"Surveillance cameras can adopt their modes (to normal or infra-red night modes) based on whether it is day or night. " This statement belong to which characteristics of Internet of Things? Integrated into into information network Self configuring Dynamic and self adapting Interoperable communication protocol	CO1	**Dynamic and self adapting**
		Which statement is not true for Publish-Subscribe Communication model? Publishers send the data to the topics which are managed by the broker. Publishers push the data to queues.	CO1	**b)Publishers push the data to queues.**

		Consumers subscribe to the topics which are managed by the broker. When the broker receives data for a topic from the publisher, it sends the data to all the subscribed consumers.		
	MCQ	Which layer determines how the packets are coded and signaled by the hardware over the medium to which the host is attached? Link layer Network Layer Transport LAyer Application layer	CO1	**a)Link layer**
	MCQ	Which one is not used as a data format in web stack of IoT protocol stack? HTML XML Binary JSON	CO1	**c)Binary**
Q.No:2	**MCQ**	Which of the following choice is correct? AMQP, DDS, MQTT and HTTP are using publish/subscribe model for communication HTTP , AMQP and CoAP are using request-response model for communication AMQP protocol uses publish/subscribe model for communication MQTT protocol used for real-time communication with video call/voice	CO1	**C)AMQP protocol uses publish/subscribe model for communication**
	MCQ	Which of the following is NOT correct? Multiple nodes are only seen in case of IOT level 4, 5 and 6. Node or nodes used in IOT level 2 and 4 are almost same. Node used in IOT level-1 having much more potential than node used	CO1	**d)None of the above**

		in other IOT levels **None of the above**		
	MCQ	Which of the following is/are NOT correct? Node used in IOT level-1 is suitable for modeling low-cost, low-complexity, less analysis and less storage space. Node used in IOT level-3 has less potential in comparison to node used in level-1 and level-2 Nodes used in IOT level-5 one node behaving like a coordinator node. None of the above	CO1	**d)None of the above**
	MCQ	Which of the following is/are NOT correct? IOT level 1, 2 and 3 are single node based. IOT level 4, 5 and 6 are multi node based Observer nodes are only applicable to multi node based IOT levels Coordinator node is present in both IOT level 6 and 7.	CO1	**d)Coordinator node is present in both IOT level 6 and 7.**
Q.No:3	**MCQ**	Which is not an IoT application of Logistics? Fleet Tracking Inventory Management Shipment tracking Remote Diagnosis	CO2	**b)Inventory Management**
	MCQ	Which application belongs to IoT application in agriculture domain? Smart Road Smart Payment Green House Control Prognosis	CO2	**c)Green House Control**
	MCQ	In your home , you have a refrigerator. In that appliance , you are keeping 50 numbers of apple, 1kg chicken and 2 bottles of sauce. How to keep track of items present in that refrigerator?	CO2	**a)Using RFID tags**

		Using RFID tags Using barcode reader Using RFID reader None of the above		
	MCQ	Which statement/s is/are correct? Machine dianosis refers to predicting the performance of a machine by analyzing the data on the current operating condition. CBR is an effective technique for problem solving in the fields in which it is hard to establish a quantitative mathematical model,such as machine diagnosis and prognosis. Only I Only II Both I and II None of the above	CO2	**b)Only II**
Q.No:4	**MCQ**	Which one is not a step for IoT design methodology? Domain model specification Service model specification Design model specification Process model specification	CO3	**c)Design model specification**
	MCQ	How many components are there in domain model specification? 3 4 5 6	CO3	**c) 5**
	MCQ	Which statement/s is/are TRUE? Information model defines the structure of all information in the IoT system. Information model describes the specifics of how the information is represented or stored. Only I Only II Both I and II None of the above	CO3	**a)Only I**
	MCQ	Physical entity is the representation of virtual entity in real world II: Virtual entity is the representation of physical entity in digital world. III: For each physical entity, there	CO3	**c)II and III**

		will be a virtual entity in the domain model I and II I and III II and III All statements		
Q.No:5	**MCQ**	Which one is not a module of IoT device based on functional attributes? Sensing Communication Actuation Networking	CO4	**d) Networking**
	MCQ	Which is not true for Sensor of IoT devices? Sensors can be on-board the IoT devices Sensors can be attached to the devices IoT devices can collect various information from only on-board sensors. IoT devices can collect various information from on-board or attached sensors.	CO4	**c) IoT devices can collect various information from only on-board sensors.**
	MCQ	Which is not true for communication module of IoT devices? Communication modules are responsible for sending collected data to other devices. Communication modules are responsible for sending collected data to cloud-based servers/storage. Communication modules are responsible for taking action upon the physical entities in the vicinity of the devices. Communication modules are receiving data from other devices and commands from remote application.	CO4	**c) Communication modules are responsible for sending collected data to other devices.**
	MCQ	Which statement is not true? IoT devices are connected to the	CO4	**d)IoT devices are always**

		Internet and send information about themselves or about their surrounding over the network. IoT devices allow actuation upon the physical entities/environment around tehm remotely. IoT devices consists of sensors,actuators, communication modules and analysis modules. IoT devices are always connected to local system only, not to any other environment.		**connected to local system only, not to any other environment.**
Q.No:6	**MCQ**	Which statement/s is/are true? Resources are hardware components . Resources are software components. Resources can available on network. I and II I and III II and III All statements	CO5	**c) II and III**
	MCQ	Which statements are true? Service functional groups includes various services involved in IoT system such as communication services, device monitoring services, etc. Communication functional group includes communication protocols that form the backbone of IoT systems . Device functional group contains devices for monitoring and control. A)I and II I and III II and III All statements	CO5	**C) II and III**
	MCQ	In case of IoT system for weather	CO5	**C)Only III**

		monitoring system, which statement is true? There are many virtual entities such as environment, sensors,etc. Services include controller service that monitors the temperature , pressure , humidity and light and sends data to local system. The analysis of data is done in the cloud to aggregate the data and make predication. Only I Only II Only III None of the above		
	MCQ	Which statement/s is/are true? Physical entity is the representation of virtual entity in real world Virtual entity is the representation of physical entity in digital world. For each physical entity, there will be a virtual entity in the domain model I and II I and III II and III All statements	CO5	**C) II and III**
Q.No:7	**MCQ**	In WAMP check given points: s1-clients are of four types[publisher, subscriber, caller, caller, callee], s2-router having broker, s3- uses both transport layer and session layer s1 and s2 are correct s2 and s3 are correct all three correct s1 and s3 are correct	CO6	**d)s1 and s3 are correct**
	MCQ	In WAMP uses RPC along with pus-sub model where s1-Broker is the middle layer between publisher and subscriber, s2- dealer is the used in between caller and callee,	CO6	**a)all three are correct**

		s3-WAMP=RPC+PubSub. all three are correct s1 and s3 are correct only s1 and s2 are correct only s3 correct		
	MCQ	In WAMP check given statements: s1-RPC uses call based and request/reply routing techniques, s2-puvlish-subscribe uses event based fire and forget techniques, s3-publish-subscribe is 1-many communication, s4-RPC is 1-Many communication. all statements are correct s1, s2 and s3 are correct s1, s2 and s4 are correct s1, s3 and s3 are correct	CO6	**b)s1, s2 and s3 are correct**
	MCQ	Why Raspberry Pi IoT device not supports all operating system: Due to Lack of limited resources Due to ARM-based CPU Both a and b Due to size of the device	CO5	b)**Due to ARM-based CPU**

SECTION-B(Answer Any Three Questions. Each Question carries 12 Marks)

Time: 1 Hour and 3 Minutes
(3×12=36 Marks)

Question No	Question	CO Mapping (Each question should be from the same CO(s))
Q.No:8	What are the communication protocols used in smart payment system according to the IoT protocol layer? Explain each protocols.	CO1,CO2
	What are the communication protocols used in air pollution monitoring system according to the IoT protocol layer? Explain each protocols	
	What are the communication protocols used in smart	

	forest fire detection system according to the IoT protocol layer? Explain each protocols	
Q.No:9	During this pandemic period, everyone is worried about their health. Define a problem statement for developing a health care system which gives alert about Body Temperature and Oxygen level of a patient if his/her oxygen saturation level below 96 SPF and also write purpose and requirements. Design process model specification, domain model specification and service model for the above mention healthcare system.	CO2,CO3,CO4
	Now-a-day, everyone is concerned about their fitness. Define a problem statement for developing a smart wearable system which record number steps you walked and workout time also write purpose and requirements. Design process model specification, domain model specification and service model for the above mention healthcare system.	
	Now-a-days, everyone knows how to purchase item from Amazon. Define a problem statement for developing a system smart logistic system which can track your item and also write purpose and requirements. Design process model specification, domain model specification and service model for the above mention system.	
Q.No:10	Draw a net diagram of Arduino UNO board and explain all its components in brief. Differentiate between Arduino UNO and Raspberry Pi.	CO5
	What is Arduino? Why do we use Arduino? Describe each components of Arduino UNO Board?	
	How Arduino is different from Raspberry Pi? Draw a neat diagram of raspberry pi board and explain all its components in brief.	
Q.No:11	Let's consider start up company ABC who wants to increase its branches globally for providing various services/activities. So to support such activity where varieties of data/information and different types of database and varieties of back end support system required, for such scenarios what are different Amazon Web Services should use and also describe why you will suggest such services for smooth running of all services/activities in a efficient and cost effective way.	CO6
	Let's us consider a scenario like YouTube, where	

	different types of things are going link live streaming, digital content uploading and playing..etc., someone wants to provide such thing with adding some more new features to it. So in this scenario what are the different Amazon Web Services should to support such things and also describe why you will use that AWS service with proper technical reason for supporting efficient and cost effective way.	
	Mention and describe different components used in various IoT levels. Technically suggest how to improve or modify a scenario which already has multiple end nodes having potential for sensing and/or actuating along with coordinator node for collecting data from end nodes and send to the cloud for storage and analysis along with cloud-based applications, to a scenario where multiple end nodes(used for sensing and/or actuating) send data to the cloud for storage, applications are cloud based where a centralizes controller is keeping all the status of all end nodes and also control such nodes.	