



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY::PUTTUR
(AUTONOMOUS)**

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QUESTION BANK (DESCRIPTIVE)



Subject with Code: Internet of Things (25MC9131)

Course & Branch: MCA

Year & Sem: II-MCA & I-Sem

Regulation: R25

**UNIT –I
OVERVIEW OF IOT**

1	a)	Define the Internet of Things. Explain the overview and flavour of IoT.	[L1][CO1]	[6M]
	b)	Describe the concept of the "Internet of Things" and explain the technology behind IoT.	[L2][CO1]	[6M]
2	a)	Explain the concept of Enchanted Objects with suitable examples.	[L2][CO1]	[6M]
	b)	Discuss the major organizations and industries contributing to the development of IoT.	[L2][CO1]	[6M]
3	a)	Identify the organizations involved in the development of the Internet of Things.	[L1][CO1]	[6M]
	b)	Discuss the design principles for connected devices.	[L2][CO1]	[6M]
4	a)	Compare Calm Technology and Ambient Technology used in connected devices.	[L4][CO1]	[6M]
	b)	Assess the importance of privacy in the design of connected devices.	[L5][CO1]	[6M]
5	a)	Describe the concept of Web Thinking as applied to connected devices.	[L2][CO1]	[6M]
	b)	Analyze the role of Affordances in the design of connected devices.	[L4][CO1]	[6M]
6	a)	Define prototyping. Discuss the importance of sketching in IoT product development.	[L2][CO1]	[6M]
	b)	Describe the role of familiarity during IoT prototyping.	[L2][CO1]	[6M]
7	a)	Compare the cost and ease of prototyping in IoT product development.	[L4][CO1]	[6M]
	b)	Apply the concept of prototypes in the production of IoT devices.	[L3][CO1]	[6M]
8	a)	Differentiate between Open-Source and Closed-Source approaches in IoT prototyping.	[L4][CO1]	[6M]
	b)	Justify the use of Open Source for IoT prototype development.	[L5][CO1]	[6M]
9	a)	Discuss the importance of tapping into the community during IoT product development.	[L2][CO1]	[6M]
	b)	Assess the contribution of community participation in improving IoT prototypes.	[L5][CO1]	[6M]
10	a)	Develop an IoT prototype by considering sketching, prototyping stages, and production.	[L6][CO1]	[6M]
	b)	Design a connected IoT device that incorporates appropriate design principles.	[L6][CO1]	[6M]

UNIT –II
EMBEDDED DEVICES

1	a)	Explain the role of electronics in embedded devices used for Internet of Things applications.	[L2][CO2]	[6M]
	b)	Describe the fundamentals of embedded computing in the Internet of Things.	[L2][CO2]	[6M]
2	a)	Explain the architecture and features of the Arduino platform.	[L2][CO2]	[6M]
	b)	Discuss the applications of Arduino in the Internet of Things.	[L3][CO2]	[6M]
3	a)	Explain the architecture and features of the Raspberry Pi.	[L2][CO2]	[6M]
	b)	Discuss the applications of Raspberry Pi in the Internet of Things.	[L3][CO2]	[6M]
4	a)	Compare the Arduino and the Raspberry Pi in terms of architecture, performance, and applications.	[L4][CO2]	[6M]
	b)	Differentiate between Arduino and Raspberry Pi with suitable points.	[L4][CO2]	[6M]
5	a)	Describe the role of mobile phones and tablets in Internet of Things applications.	[L2][CO2]	[6M]
	b)	Discuss the advantages of mobile platforms in the Internet of Things.	[L2][CO2]	[6M]
6	a)	Explain the concept of Plug Computing in the Internet of Things.	[L2][CO2]	[6M]
	b)	Identify the features of the Always-on Internet of Things and explain them clearly.	[L2][CO2]	[6M]
7	a)	Analyze the importance of embedded computing in IoT-based applications.	[L4][CO2]	[6M]
	b)	Assess the significance of embedded devices in the Internet of Things.	[L5][CO2]	[6M]
8	a)	Examine the suitability of Arduino for developing IoT applications.	[L4][CO2]	[6M]
	b)	Evaluate the suitability of Raspberry Pi for Internet of Things applications.	[L5][CO2]	[6M]
9	a)	Illustrate the use of mobile phones and tablets as embedded platforms in IoT.	[L3][CO2]	[6M]
	b)	Analyze the role of Plug Computing in the Always-on Internet of Things.	[L4][CO2]	[6M]
10	a)	Develop an Internet of Things application by selecting an appropriate embedded platform.	[L6][CO2]	[6M]
	b)	Propose a suitable embedded device for an IoT application with justification.	[L6][CO2]	[6M]

UNIT –III

COMMUNICATION IN THE IOT

1	a)	Define Internet Communication and describe its importance in the Internet of Things.	[L2][CO3]	[6M]
	b)	Discuss the communication architecture used in IoT applications.	[L2][CO3]	[6M]
2	a)	Describe the structure and purpose of IP Addresses in IoT communication.	[L2][CO3]	[6M]
	b)	Differentiate between IP Addresses and MAC Addresses with suitable points.	[L4][CO3]	[6M]
3	a)	Explain the significance of MAC Addresses in Internet of Things communication.	[L2][CO3]	[6M]
	b)	Analyze the functions of TCP and UDP ports in IoT communication.	[L4][CO3]	[6M]
4	a)	Illustrate the role of Application Layer Protocols in the Internet of Things.	[L3][CO3]	[6M]
	b)	Assess the importance of Application Layer Protocols for reliable IoT communication.	[L5][CO3]	[6M]
5	a)	Describe the steps involved in getting started with an API for IoT applications.	[L2][CO3]	[6M]
	b)	Discuss the procedure for writing a new API in IoT applications.	[L2][CO3]	[6M]
6	a)	Explain the role of APIs in connecting IoT devices and online components.	[L2][CO3]	[6M]
	b)	Apply API concepts to support communication between IoT devices and cloud services.	[L3][CO3]	[6M]
7	a)	Examine the concept of Real-Time Reactions in Internet of Things applications.	[L4][CO3]	[6M]
	b)	Evaluate the significance of Real-Time Reactions in IoT environments.	[L5][CO3]	[6M]
8	a)	Discuss the need for Internet Communication protocols in IoT systems.	[L2][CO3]	[6M]
	b)	Analyze the role of Other Protocols in Internet of Things communication.	[L4][CO3]	[6M]
9	a)	Compare TCP and UDP ports in terms of IoT communication requirements.	[L4][CO3]	[6M]
	b)	Justify the use of APIs in developing Internet of Things applications.	[L5][CO3]	[6M]
10	a)	Develop an API-based communication approach for an Internet of Things application.	[L6][CO3]	[6M]
	b)	Propose a suitable Internet Communication model using the protocols for an IoT application.	[L6][CO3]	[6M]

UNIT –IV
BUSINESS MODELS

1	a)	Define a business model. Discuss the evolution of business models in the Internet of Things.	[L2][CO4]	[6M]
	b)	Write the importance of business models in Internet of Things applications.	[L2][CO4]	[6M]
2	a)	Identify the the components of the Business Model Canvas used for IoT applications and illustrate about that clearly.	[L2][CO4]	[6M]
	b)	Analyze the role of the Business Model Canvas in developing IoT-based solutions.	[L4][CO4]	[6M]
3	a)	Discuss the importance of identifying the target customers while designing an IoT business model.	[L2][CO4]	[6M]
	b)	Assess the significance of business models in the success of IoT enterprises.	[L5][CO4]	[6M]
4	a)	Explain the funding requirements of an Internet of Things startup.	[L2][CO4]	[6M]
	b)	Evaluate the importance of funding for establishing an IoT startup.	[L5][CO4]	[6M]
5	a)	Describe the concept of Lean Startups in the Internet of Things.	[L2][CO4]	[6M]
	b)	Analyze the advantages of the Lean Startup approach in IoT product development.	[L4][CO4]	[6M]
6	a)	Explain the manufacturing process involved in developing Internet of Things products.	[L2][CO4]	[6M]
	b)	Discuss the factors to be considered during IoT product manufacturing.	[L2][CO4]	[6M]
7	a)	Describe the process of designing kits for Internet of Things applications.	[L2][CO4]	[6M]
	b)	Illustrate the importance of kit design in IoT product development.	[L3][CO4]	[6M]
8	a)	Explain the process of designing Printed Circuit Boards (PCBs) for IoT devices.	[L2][CO4]	[6M]
	b)	Compare kit design and Printed Circuit Board design in IoT manufacturing.	[L4][CO4]	[6M]
9	a)	Analyze the relationship between business models and manufacturing in IoT product development.	[L4][CO4]	[6M]
	b)	Justify the need for selecting a suitable business model before manufacturing IoT products.	[L5][CO4]	[6M]
10	a)	Design a business model for an Internet of Things startup using the Business Model Canvas.	[L6][CO4]	[6M]
	b)	Develop an IoT product development plan by integrating business model and manufacturing concepts.	[L6][CO4]	[6M]

UNIT –V
MANUFACTURING CONTINUED

1	a)	Explain the process of manufacturing Printed Circuit Boards (PCBs) for IoT devices.	[L2][CO5]	[6M]
	b)	Discuss the importance of Printed Circuit Boards in Internet of Things applications.	[L2][CO5]	[6M]
2	a)	Describe the process of mass-producing the case and other fixtures for IoT devices.	[L2][CO5]	[6M]
	b)	Analyze the factors influencing the mass production of IoT products.	[L4][CO5]	[6M]
3	a)	Explain the need for certification in the manufacturing of Internet of Things products.	[L2][CO5]	[6M]
	b)	Assess the importance of certification for IoT devices.	[L5][CO5]	[6M]
4	a)	Discuss the factors affecting the cost of IoT product development.	[L2][CO5]	[6M]
	b)	Analyze the impact of production cost on Internet of Things applications.	[L4][CO5]	[6M]
5	a)	Explain the concept of scaling up software in Internet of Things.	[L2][CO5]	[6M]
	b)	Evaluate the importance of software scalability in IoT systems.	[L5][CO5]	[6M]
6	a)	Describe the ethical characteristics of the Internet of Things.	[L2][CO5]	[6M]
	b)	Discuss the ethical issues associated with Internet of Things applications.	[L2][CO5]	[6M]
7	a)	Explain the significance of privacy in Internet of Things environments.	[L2][CO5]	[6M]
	b)	Analyze the role of privacy in ensuring secure IoT applications.	[L4][CO5]	[6M]
8	a)	Discuss the importance of control in Internet of Things systems.	[L2][CO5]	[6M]
	b)	Evaluate the impact of environmental considerations in Internet of Things deployment.	[L5][CO5]	[6M]
9	a)	Analyze the ethical challenges associated with Internet of Things applications.	[L4][CO5]	[6M]
	b)	Discuss the solutions for addressing ethical issues in the Internet of Things.	[L2][CO5]	[6M]
10	a)	Design an IoT product development process that considers manufacturing, certification, and software scalability.	[L6][CO5]	[6M]
	b)	Develop suitable measures to address privacy, control, and environmental issues in Internet of Things applications.	[L6][CO5]	[6M]

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