

Basavarajeswari Group of Institutions

**BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT**  
 (Autonomous Institute under Visvesvaraya Technological University, Belagavi)

2022 SCHEME

USN 

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Course Code 

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Sixth Semester B.E. Degree Examinations, June/July 2025

## INTERNET OF THINGS (IoT)

Duration: 3 hrs

Max. Marks: 100

**Note:** 1. Answer any FIVE full questions, choosing ONE full question from each module.  
2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTl:CO: PI)</u>
<b><u>Module-1</u></b>			
1.	a. Explain the IOT framework highlighting significance of each layer.	06	(2:1:1.2.1)
	b. Discuss the GE IoT framework with a neat sketch.	07	(2:1:1.2.1)
	c. Explain the following terms (i) Computer Architecture (ii) Packaging (iii) All good software	07	(2:1:1.2.1)
<b>(OR)</b>			
2.	a. Outline PTC's role in smart, connected protocol technology stack with a neat figure.	06	(2:1:1.2.1)
	b. Discuss the significance of sensors in a mobile phone.	07	(2:1:1.2.1)
	c. Explain the following terms: (i) SOC (ii) SIP (iii) SDE & IDE (iv) Memory Footprint (v) Secure boot (vi) No bad software	07	(2:1:1.2.1)
<b><u>Module-2</u></b>			
3.	a. Sketch OSI model and explain with an example of sending an email w.r.t OSI Model.	06	(2:2:1.2.1)
	b. Explain the following technologies: (i) ZigBee (ii) LoRaWAN (iii) Wi-Fi (iv) Firewalls	07	(2:2:1.2.1)
	c. Explain the role of satellites and cellular network w.r.t connect layer.	07	(2:2:1.2.1)
<b>(OR)</b>			
4.	a. Compare SQL and NoSQL approaches as the IOT data storage solutions.	06	(2:2:1.2.1)
	b. Highlight the implementation of collect layer in terms of power industry.	07	(2:2:1.2.1)
	c. Explain the role of collect layer applications in: (i) Water (ii) Financial services	07	(2:2:1.2.1)
<b><u>Module-3</u></b>			
5.	a. Write a short note on (i) Database query (ii) Prediction w.r.t learn principles.	06	(2:3:1.2.1)
	b. Discuss train control systems & prove how systems achieved fuel savings & avoidance of greenhouse emissions.	07	(2:3:1.2.1)
	c. Outline the concept of dynamic machine learning.	07	(2:3:1.2.1)

**Note: (RBTl - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)**

**(OR)**

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| <b>6.</b> | <b>a.</b> Explain how precision machines can:<br>(i) Improve quality of service (ii) Reduce cost of service                 | <b>06</b> | <b>(2:3:1.2.1)</b> |
|           | <b>b.</b> Explain how precision service can:<br>(i) Lower consumables cost & provide (ii) Higher quality product or service | <b>07</b> | <b>(2:3:1.2.1)</b> |
|           | <b>c.</b> List and explain the advantages of precision service industries.  | <b>07</b> | <b>(2:3:1.2.1)</b> |

**Module-4**

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| <b>7.</b> | <b>a.</b> Discuss how Pitney Bowes Epic inserter is connected to network and highlight how it is secured.  | <b>06</b> | <b>(2:4:1.2.1)</b> |
|           | <b>b.</b> Illustrate Pitney Bowes is using GE's Predix as a platform for a series of new IoT applications. | <b>07</b> | <b>(2:4:1.2.1)</b> |
|           | <b>c.</b> Discuss long wall machines IoT application architecture in collecting data.                      | <b>07</b> | <b>(2:4:1.2.1)</b> |

**(OR)**

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| <b>8.</b> | <b>a.</b> Discuss how Joy Global provides a series of services pertaining to long wall system in the Do layer. | <b>06</b> | <b>(2:4:1.2.1)</b> |
|           | <b>b.</b> Discuss the precision agriculture solution w.r.t Things layer.                                       | <b>07</b> | <b>(2:4:1.2.1)</b> |
|           | <b>c.</b> List and explain the advantages of AGCO's dealer channel.  | <b>07</b> | <b>(2:4:1.2.1)</b> |

**Module-5**

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| <b>9.</b> | <b>a.</b> Explain with a neat sketch of Sensium Vitals w.r.t Things layer.                                    | <b>06</b> | <b>(2:5:1.2.1)</b> |
|           | <b>b.</b> Discuss Horton works Hadoop environment collects data.  | <b>07</b> | <b>(2:5:1.2.1)</b> |
|           | <b>c.</b> Explain with a neat sketch of McCrometer connection architecture considering the use case of water. | <b>07</b> | <b>(2:5:1.2.1)</b> |

**(OR)**

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|------------|--|-----------|--------------------|
| <b>10.</b> | <b>a.</b> Write short notes on layers (i) Learn (ii) Do considering water use case                               | <b>06</b> | <b>(2:5:1.2.1)</b> |
|            | <b>b.</b> Discuss the high level SAM car architecture in a race car.   | <b>07</b> | <b>(2:5:1.2.1)</b> |
|            | <b>c.</b> Illustrate how the connect layer of the IoT framework connects the Things inside a precision race car. | <b>07</b> | <b>(2:5:1.2.1)</b> |

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