

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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Sixth Semester B.E. Degree Examinations, May/June 2026

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>
<u>Module-1</u>			
1.	a. Explain the IoT framework highlighting significance of each layer.	07	(2 :1: 1.2.1)
	b. What are the different types of sensors used in IoT devices? Explain their functions.	07	(3 :1: 1.2.1)
	c. Differentiate microcontrollers and microprocessors in the context of IoT applications.	06	(3 :1: 1.2.1)
(OR)			
2.	a. Illustrate the structure of the GE's IoT framework for build machines use case.	07	(3 :1: 1.2.1)
	b. Illustrate the working of a clinical haematology analyser and Explain how IoT integration enhances its performance.	07	(3 :1: 1.2.1)
	c. Explain the terms: (i) SOC (ii) SIP (iii) SDE & IDE	06	(2 :1: 1.2.1)
<u>Module-2</u>			
3.	a. Demonstrate the application of the OSI model by illustrating the process of sending an email through its seven layers.	07	(3 :2: 1.2.1)
	b. Outline the tradeoff between range & power consumption for four different connection technologies of IoT.	07	(3 :2: 1.2.1)
	c. Demonstrate how satellites and cellular networks can be used in the connect layer of an IoT system.	06	(3 :2: 1.2.1)
(OR)			
4.	a. Explain the terms: (i) ZigBee (ii) WiFi (iii) LoraWAN	07	(2 :2: 1.2.1)
	b. Write a short note w.r.t collect principles (i) Time Series (ii) Cloud Computing	07	(3 :2: 1.2.1)
	c. Compare SQL and NOSQL approaches as the IoT data storage solutions.	06	(2 :2: 1.2.1)
<u>Module-3</u>			
5.	a. Explain the CRISP (Data Mining) lifecycle in the context of machine learning.	07	(2 :3: 1.2.1)

	b.	Illustrate some examples of learn in practise based on (i) Transportation (ii) Healthcare	07	(3 :3: 1.2.1)
	c.	Write a short note on (i) Database query (ii) Prediction w.r.t learn principles.	06	(3 :3: 1.2.1)
		(OR)		
6.	a.	Explain how precision machines can (i) Improve quality of service (ii) Reduce cost of service.	07	(2 :3: 1.2.1)
	b.	Demonstrate how next-generation middleware can be used in an IoT system.	07	(3 :3: 1.2.1)
	c.	Illustrate the packaged IOP applications.	06	(3 :3: 1.2.1)
		<u>Module-4</u>		
7.	a.	What are the main functions of the Epic Inserter used in Pitney Bowes' high-volume mail production? Explain.	07	(3 :4: 1.2.1)
	b.	How data from Pitney Bowes' inserters is securely transmitted to GE's Predix platform?	07	(3 :4: 1.2.1)
	c.	What is the purpose of oil and vibration analysis in Joy Global's maintenance strategy?	06	(3 :4: 1.2.1)
		(OR)		
8.	a.	What components make up a longwall mining system and what is its primary function?	07	(3 :4: 1.2.1)
	b.	What operations are combined in an AGCO Gleaner-brand combine harvester?	07	(3 :4: 1.2.1)
	c.	What are the two types of data handled in AGCO's "two-pipe" approach, and how are they treated differently?	06	(3 :4: 1.2.1)
		<u>Module-5</u>		
9.	a.	How does the "Connect-Collect-Learn-Do" framework apply in a precision hospital environment? Provide examples.	06	(3 :5: 1.2.1)
	b.	Illustrate how IoT technologies are used to improve patient monitoring and care in precision healthcare.	07	(3 :5: 1.2.1)
	c.	Explain the role of predictive maintenance in reducing downtime in power systems using IoT solutions.	07	(2 :5: 1.2.1)
		(OR)		
10.	a.	Illustrate how IoT enables intelligent water monitoring and leakage detection in precision water management systems.	06	(3 :5: 1.2.1)
	b.	Explain how sensor data collected from race cars is used to improve driver behavior and vehicle tuning.	07	(2 :5: 1.2.1)
	c.	How does predictive analysis help prevent mechanical failures in high-performance vehicles?	07	(3 :5: 1.2.1)

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