

PRN No.	
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PAPER CODE	V315-284A (ESE)
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(AY:2025-26) December 2025 (ENDSEM) EXAM

TY/ (SEMESTER - I)

COURSE NAME: IOT APPLICATIONS Branch: TY COURSE CODE: (SE31234A)

(T.Y (Pattern 2023)/ *CBE (Software Engg)*)

Time: [1Hr 30 Min]

[Max. Marks: 40]

(*) Instructions to candidates:

- 1) Figures to the right indicate full marks. Use of scientific calculator is allowed
- 2) Use suitable data wherever required
- 3) All questions are compulsory. Solve any two sub question each from Questions 1 and 2
- 4) Solve any one sub question (2 marks) from Questions 3,4,5 and 6 and sub question of 4 marks is compulsory from questions 3,4,5,and 6

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Illustrate with an example how IoT can be applied in Healthcare for patient monitoring.	[4]	CO1	2
	b) Justify why Raspberry Pi might be a better choice than NodeMCU for complex IoT applications.	[4]		
	c) Design a simple IoT-based Smart Home system using temperature, IR, and ultrasonic sensors. Mention the hardware and software requirements.	[4]		
Q2	a) Develop a communication model for a smart healthcare system using CoAP protocol.	[4]	CO2	3
	b) Experiment with Zigbee in a smart home system. Suggest suitable use cases.	[4]		
	c) Identify and explain two major challenges in IoT networking.	[4]		
Q3	a) Classify IoT Operating Systems into lightweight OS and real-time OS with one example each. OR	[2]	CO3	6
	b) Compare embedded software with edge computing in IoT.	[2]		
	c) List any four challenges in IoT Software Development and simplify them briefly.	[4]		
Q4	a) Identify one time-series database and interpret its primary use in IoT. OR	[2]	CO4	4
	b) Assess the importance of data preprocessing in IoT systems.	[2]		
	c) Interpret the role of stream processing and machine learning in IoT data analytics and discover one real-world application.	[4]		

Q.5	<p>a) Compare edge processing and cloud processing in one key point.</p> <p style="text-align: center;">OR</p> <p>b) Judge one ethical issue in IoT deployment related to privacy.</p> <p>c) Evaluate the importance of authentication and authorization in IoT systems. Explain how they help mitigate threats.</p>	<p>[2]</p> <p>[2]</p> <p>[4]</p>	CO5	5
Q.6	<p>a) Identify one programming language commonly used for IoT development and describe its use.</p> <p style="text-align: center;">OR</p> <p>b) Explain why testing and debugging are <u>important</u> in IoT applications.</p> <p>c) Develop a simple IoT application using Node.js or Python for a smart home system and explain its integration with cloud services.</p>	<p>[2]</p> <p>[2]</p> <p>[4]</p>	CO6	6