



Shirpur Education Society's
R. C. PATEL INSTITUTE OF TECHNOLOGY, SHIRPUR

An Autonomous Institute

(Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere.)

आर. सी. पटेल इन्स्टिट्यूट ऑफ टेक्नोलॉजी, शिरपुर

(स्वयंसेवक विद्यालय)



Academic Year (2022-23)

Year: 3 Semester: V

Max. Marks: 75

Program: B. Tech. (ELECTRICAL ENGG.)

Subject: IoT and Its Applications in Electrical Engineering (PEEE5052T)

Date: 14/01/2023

Time: 10:30 am to 1:30 pm

Duration: 3 Hours

END SEM EXAMINATION –ODD SEM-V (Regular)

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.

- (1) This question paper contains 2 pages.
- (2) All Questions are Compulsory.
- (3) All questions carry equal marks.
- (4) Answer to each new question is to be started on a fresh page.
- (5) Figures in the brackets on the right indicate full marks.
- (6) Assume suitable data wherever required, but justify it.
- (7) Draw the neat labelled diagrams, wherever necessary.

Question No.		Max. Marks
Q1 (a)	<p>What is ultrasonic sensor? Explain the working principle of ultrasonic sensor.</p> <p style="text-align: center;">OR</p> <p>i. What is force sensor? Explain working of force sensor with neat diagram.</p> <p>ii. Compare dc motors with ac motors</p>	[05]
Q1 (b)	Explain construction and working of the stepper motor with full drive and half drive rotation sequence.	[10]
Q2 (a)	<p>i. Explain SoC architecture of Raspberry pi board.</p> <p>ii. Explain the pin configuration of Arduino Uno board.</p> <p style="text-align: center;">OR</p> <p>Interface IR sensor with Arduino Uno and write a program to detect obstacle using IR sensor.</p>	[06]
Q2 (b)	What is DHT sensor? Explain output data format used by DHT sensor that indicate temperature and humidity.	[04]
Q3 (a)	<p>Explain scalability issues of a wireless sensor network.</p> <p style="text-align: center;">OR</p> <p>Compare Fog and Cloud Computing.</p>	[10]
Q3 (b)	<p>What is wireless sensor network? Explain various WSN technologies in detail.</p> <p style="text-align: center;">OR</p> <p>What is IoT? Explain main components of IoT architecture.</p>	[05]



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Q4 (a)	Explain how IoT is deployed using various IoT levels. OR i. Compare various IoT communication technologies. ii. Explain embedded operating system for IoT.	[08] [04] [04]
Q4 (b)	Explain working principle of MQTT protocol.	[07]
Q5 (a)	Solve any two. i. What are the types of cloud storage? ii. What are the advantages of using cloud in IoT? iii. Explain the process of sending data from Arduino to cloud. iv. Explain the use of IoT in Home automation.	[05] [05] [05] [05]
Q5 (b)	Explain the role of IoT in Smart Grid.	[05]