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Total Number of Pages: 02

Course: B.Tech  
Sub\_Code: REC7D002

7<sup>th</sup> Semester Regular/Back Examination: 2024-25  
SUBJECT: Embedded System/ Embedded Systems  
BRANCH(S): AEIE, CSE, CSIT, EEE, ELECTRICAL, ECE, ETC, EIE, IT, MECH  
Time: 3 Hours  
Max Marks: 100  
Q. Code: R404

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right-hand margin indicate marks.

Part-I

Q1 Answer the following questions: (2 x 10)

- Mention the important components of an embedded system.
- Distinguish between CISC and RISC processors.
- What are the different methods used to meet the design challenges of embedded system?
- Mention different types of serial and parallel ports of I/O devices.
- Draw the write byte format and read byte format of I<sup>2</sup>C.
- Give comparison of the buses used in serial communication.
- What is a CAN bus and where is it used?
- How does the scheduler know when a task has become blocked or unblocked?
- Mention at least two important techniques which can help reduce power consumption in an embedded system design.
- Mention the features of the task.

Part-II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- Explain the basic processors and hardware units in the embedded system.
- Explain the various features in USB communication protocol.
- Explain about sequential program model for the development of embedded platform.
- Explain in brief about Modelling of multiprocessor systems.
- Write short notes on timer and event functions.
- Explain about the RS-232C interface standard protocol.
- Elaborate in detail about the Memory system mechanisms and its types.
- Explain about the timer and counting devices in details.
- Explain the classification of embedded systems with examples.

- j) Briefly explain about the data transfer mechanism using DMA in Embedded System,
- k) Explain in details about Bluetooth.
- l) Mention different Real time models or Computational Model and explain in details about Data Flow Model.

### Part-III

#### Only Long Answer Type Questions (Answer Any Two out of Four)

- Q3** Elaborate about Structural unit of Embedded Processor including processor architecture and advanced processor architecture. **(16)**
- Q4** Demonstrate the signal using a transfer of byte when using the I<sup>2</sup>C bus and also the format of bits at the I<sup>2</sup>C bus with diagram. **(16)**
- Q5** Why we need device driver? How do you write a device driver? List the steps involved in writing a device driver. **(16)**
- Q6** How to select the processor based upon its architecture and applications? **(16)**