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Question Paper Code: BESB06



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech I Semester End Examinations (Regular) - January, 2019

Regulation: IARE-R18

## PRINCIPLES OF DISTRIBUTED EMBEDDED SYSTEMS

Time: 3 Hours

(ES)

Max Marks: 70

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Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

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### UNIT – I

1. (a) List out the elements of real time systems. Explain each with neat sketch. [7M]  
(b) Explain in detail to synchronize the external and internal clock. [7M]
2. (a) Brief about internal and external clock synchronization. [7M]  
(b) Write short on the following with neat sketch [7M]
  - i. Event triggered
  - ii. Time triggered

### UNIT – II

3. (a) Draw the structure of real time operating system and explain in detail. [7M]  
(b) Write shorts notes on the following. i. Task states ii. Periodic task iii. Aperiodic task [7M]
4. (a) Write a C code to interface LCD with any one processor with neat sketch. [7M]  
(b) Briefly explain how to detect error in an RTOS and also express how to rectify it. [7M]

### UNIT – III

5. (a) Explain in detail about the priority-based scheduling algorithm with example. [7M]  
(b) Express and explain the pre-processing steps need to be done before system design. [7M]
6. (a) Briefly describe about verification and validation procedure of an embedded system under design. [7M]  
(b) Explain in detail about time triggered architecture with any one application, illustrate with its timing diagram. [7M]

#### UNIT – IV

7. (a) Explain in detail about the CAN collisions and arbitration. [7M]  
(b) How to organize object directory in CAN protocol. Express it with any one example. [7M]
8. (a) List out the mandatory entries of CAN protocol and explain each. [7M]  
(b) Write short notes on Electronic Data Sheets(EDS) and editing in CAN Open standard. [7M]

#### UNIT – V

9. (a) Brief about the estimated bandwidth usage in a CAN Open configuration. [7M]  
(b) Write short notes on CAN OpenIA Configuration and its standards. [7M]
10. (a) List out the different layers used for CAN communication and explain each layer. [7M]  
(b) Discuss in detail about the configuration of a device and the basic information required to configure it. [7M]

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