

R15**Code No: 127CZ****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, May/June - 2019****EMBEDDED SYSTEM DESIGN****(Common to ECE, ETM)****Time: 3 Hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A**(25 Marks)**

- 1.a) Give few examples of embedded systems. [2]
- b) Write the difference between Embedded Systems and General computing systems. [3]
- c) Define microcontroller. [2]
- d) Differentiate between general purpose processor and application specific instruction processor. [3]
- e) List the various methods available for developing the embedded firmware. [2]
- f) What is purpose of reset circuit? Explain. [3]
- g) What is an Operating system? [2]
- h) List the features of RTOS. [3]
- i) What is mean by IPC? [2]
- j) What is meant by concurrency of task execution in real time system? [3]

PART-B**(50 Marks)**

2. Explain the classification of embedded systems based on different criteria in detail and give an example for each. [10]

OR

3. Explain the various purposes of embedded systems with illustrative examples. [10]
4. What is the difference between microprocessors and microcontrollers? Explain the role of microprocessors and controllers in embedded system design. [10]

OR

5. Explain the different communication on-board communication interfaces in brief. [10]
6. What is watch timer? Also explain its role in embedded system with examples. [10]

OR

7. Explain the role of RTC in embedded system design, with examples. [10]
8. What is a process? With a neat representation explain the process states and state transition. [10]

OR

9. Explain the different multitasking models in the operating system context. [10]
10. Explain the architecture of device driver with neat sketch and give the applications of device drivers. [10]

OR

- 11.a) Explain message passing technique for inter process communication in detail.

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- b) Explain the concept of Shared memory in task communication. [5+5]