Code No: 117CZ **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
EMBEDDED SYSTEM DESIGN
(Electronics and Communication Engineering)

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)	Define "Time-to-market".	[2]
b)	What is the quality attribute "Portability" in the embedded system design context.	[3]
c)	What is the role of ASIC in Embedded System design?	[2]
d)	What is Actuator?	[3]
e)	What is the role of Reset Circuit in embedded system?	[2]
f)	What are the merits and drawbacks of 'recursion'?	[3]
g)	What is an Operating system? What are its primary functions?	[2]
h)	What is task control block (TCB)?	[3]
i)	Define Coffman conditions.	[2]
j)	How multiple threads of a process co-operate?	[3]

PART-B

(50 Marks)

2. Define an embedded system? Explain the characteristics of Embedded Systems. [10]

OR

3. Explain the various purposes of embedded systems in detail with illustrative examples. [10]

4.a) Explain the different factors that needs to be considered in the selection of memory for embedded systems.

b) Explain the difference between I^2C and SPI communication interface. [5+5]

OR

5. Explain the different communication buses used in automotive application. [10]

6. Explain the different sections of a memory segment allocated to an application by the memory manager. [10]

OR

7. Explain the difference between ‘pointer to constant data’ and ‘constant pointer to data’ in Embedded C programming. Explain the syntax for declaring both. [10]

8.a) Explain starvation in the process scheduling context. Explain how starvation can be effectively tackled.

b) What is the difference between a General Purpose kernal and Real-Time kernel? Give an example for both. [5+5]

OR

9. Explain the different multitasking models in the operating system context. [10]

10. Explain in detail, the different task communication synchronization issues encountered in Inter Process communication. [10]

OR

11. Explain the architecture of device driver, with neat sketch and give the applications of device drivers. [10]

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