Code No: 156AV **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, July - 2023

EMBEDDED SYSTEM DESIGN

(Electronics and Communication Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	Define "Time-to-market".	[2]
b)	Write the difference between Embedded Systems and General computing systems.	[3]
c)	Discuss the different types of RAM used for embedded system design?	[2]
d)	What are the considerations for processor selection?	[3]
e)	List the various methods available for developing the embedded firmware.	[2]
f)	What is absolute object file?	[3]
g)	What is the function of timer in RTOS?	[2]
h)	Discuss briefly about Task Scheduling.	[3]
i)	Define task synchronization?	[2]
j)	What is meant by concurrency of task execution in real time system?	[3]

PART – B

(50 Marks)

2. Explain the various purposes of embedded systems with illustrative examples. [10]

OR

3. Explain in detail the classification of embedded system. [10]

4. Explain the different communication interfaces with respect to embedded systems. [10]

OR

5. What is programmable logic device? What are different types of PLDs? Explain the role of PLDs in embedded system design. [10]

6.a) What are the design criteria of external brown-out protection circuit.
b) How to design and implement firmware for embedded systems? [5+5]

OR

7. Explain the functionality and role of Brown out protection circuit in embedded system. [10]

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

OR

9. What is the need of an embedded firmware? Briefly explain the embedded firmware development languages. [10]

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

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

OR

11. Describe the use of RTOS in embedded systems. [10]

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