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## 6E6025

B. Tech. (Sem. VI) (Main & Back) Examination, April-May 2018 Computer Sc. & Engg.

6CS5A Embedded System Design

Time: 3 Hours

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Maximum Marks: 80

Min. Passing Marks: 26

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

NIL

2. NIL

## UNIT - I

Explain the Embedded System I/O Architecture and also explain the 1 (a) requirements before designing an embedded system.

Discuss the selection criterias of a microcontroller. Explain in detail. (b)

10

OR

- What is the difference between microcontroller, microprocessor and DSP 1 (a) and what is the use of Microcontroller? 8
  - Define the Embedded System. What are the programmable logic devices? (b) Explain the field programmable gate arrays. 8

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P.T.O.

## UNIT - II rtuonline.com 2 What operations are performed by CPU for solving sharing data problem? (a) Explain the Round Robin scheduling. (b) 8 OR 2 What is context and why context saving occurs in multitasking system? (a) Explain interrupt in embedded system and also give the brief idea of (b) Function Queue scheduling Architecture. 8 UNIT - III rtuonline.com 3 Short note on: (a) (1) Reentrancy Mutex (2) (3) Scheduler (4) RTOS $4 \times 4 = 16$ OR What is interprocess communication and synchronization in RTOS? 3 (a) 8 Explain the role of timer functions in RTOS. 8 UNIT - IV Difference between hard real time and soft real time system. (a) 8

Explain the architecture of RTOS Kernel.

8

(b)

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4	(a)	Short note on:
		(1) RT Linux
		(2) Locator
	(b)	Brief idea to save memory space in embedded system.
		8
		UNIT - V
		rtuonline.com ,
5	(a)	Explain following terms:
	•	(i) Emulator
		(ii) CPU performing issue
		4×2=8
	(b)	Explain the Debugging Techniques.
		8
		OR
5	(a)	What is the process of software code development in Embedded System?
	(b)	Explain the in-circuit emulators and monitors.

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