USN

Seventh Semester B.E. Degree Examination, Dec.2016/Jan.2017 **Embedded Computing System**

Time: 3 hrs.

Max. Marks:100

10CS72

Note: Answer FIVE full questions selecting

			Note: Answer FIVE full questions, selecting at least TWO questions from each part.	
	1		PART - A	
stice.	1	a.	What is an embedded system? Differentiate between a general purpose compembedded system.	outer and an (04 Marks)
lprac		b.	Explain the design of a requirement form for the beginning of project.	(04 Marks)
as ma		c.	Discuss various challenges in embedded computing system design.	(08 Marks)
eated	2	a.	Differentiate between:	
k pages. will be tr			i) Cache hit and cache miss with a neat diagram.ii) LDRH and LDRB of ARM instructions.	
		b.	ii) LDRH and LDRB of ARM instructions.What is an interrupt? Explain the mechanism of interrupt vectors with a neat diag	(04 Marks)
blan 50,				(08 Marks)
ing +8 =		c.	Write ARM assembly code to implement the following C statement:	
mair 5, 42		d	$Z = (a < < 2) \mid (b \& 15).$	(04 Marks)
ne rei en eg		d.	What is pipeline? Explain the stages in an ARM pipeline.	(04 Marks)
on the writt	3	a.	Explain the following terms: i) Bus master; ii) Four-cycle handshak	e protocol;
ines			iii) Components/signals on a bus; iv) DMA.	(12 Marks)
ross l quati		b.	Explain, how bridge can be used to connect different speeds systems.	(08 Marks)
nal c /or e	4	a.	Explain three techniques used in loop optimization.	(10 Marks)
iago and		b.	Explain the role of assembles and links in the compilation process with a neat dia	igram.
aw d iator		c.	What is dead code elimination? Explain.	(07 Marks)
y dra evalu		0.	PART – B	(03 Marks)
Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.	5	a.	What is a process? What is Kernel? Explain any three services of the Kernel in	an operating
			system.	(08 Marks)
		b.	Compare thread v/s process.	(07 Marks)
iswers ficatio		c.	Define the following terms: i) CPU utilization; ii) Throughput; iii) Turna iv) Waiting time; v) Response time.	round time; (05 Marks)
g your ans of identif	,			
	6	a.	Explain the working of a shared memory communication system with a neat diag	ram. (08 Marks)
oletin aling		b.	List various assumptions done during the evaluation of operating system perform	ance.
omp				(04 Marks)
On c Any		C.	Explain the following with respect to IPC: i) signals; ii) mail-boxes.	(08 Marks)
.1.	7	a.	With a neat diagram, explain CAN data frame format.	(10 Marks)
Note		b.	Explain the basic format of an IP packet.	(10 Marks)
rtant	8		Explain the following file types generated during cross-compiling/assembling:	
odwj			i) . obJ File	
			ii) . Map File	
			iii) . Hex File iv) . lst File.	(0.15.
			iv) . lst File.	(20 Marks)