Code: DE67 / DC67

Subject: EMBEDDED S

ROLL NO.

Diplete – Et/cs

Time: 3 Hours

DECEMBER 2012

D. ED S. HIBOUTHER Max. Marks: 100

 (2×10)

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following:

a. The Processor technology relates to the architecture of the

(A) Memory Blocks(B) Computation Engine(C) IO Blocks(D) All of these

b. A logic synthesis tool converts Boolean expressions into a connection of

(A) Logic gates	(B) RT Components
(C) Register Transfers	(D) All of these

c. The advantages of Mask -Programmed ROM are

(A) Density(B) Speed(C) Low Write Ability(D) All of these

d. A program that runs on one processor and executes the instructions of another processor is called

(A)	Distributed processor	(B) Single-purpose processor	
(C)	Instruction-set Simulator	(D) All of these	

- e. To overcome the limitation of polling, most microprocessors come with a feature called
 - (A) External Interrupt(C) Vectored Interrupt
- (B) Internal Interrupt(D) All of these

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f. The I^2C and CAN bus protocol	s are designed for
(A) Interfacing IC's	(B) Interfacing Buses
(C) Interface IO's	(D) All of these
g. The linker operates on the object files created by the assembler and modifies the assembled code to make the necessary links between files.	
(A) True	(B) False
(C) Not linker, it's Loader	(D) Both linker and Loader
h. A LCD driver function is	
(A) To excite the LCD dots(C) To manage LCD action	(B) To excite the LCD characters(D) Both (A) and (B)
i. Interconnect networks have embedded computing are	been developed especially for distributed
$(\mathbf{A}) \mathbf{I}^{2} \mathbf{C}$	(B) CAN
(C) Ethernet	(D) All of these
j. In a Timer, the minimum interval it can measure is called	
(A) Sensitivity	(B) Accuracy
(C) Both (A) and (B)	(D) Resolution

Answer any FIVE Questions out of EIGHT Questions. Each question carries 16 marks.

Q.2 a. Explain why single-purpose processors (hardware) and general purpose processors are essentially the same and then describe how they differ in terms of design metrics. (8) b. Define Moore's law? Explain co-design ladder in embedded system. (8) Q.3 a. Design a sequential logic circuit to construct a pulse divider. Slow down your pre-existing pulse so that you output a 1 for every four pulse detected. (10)b. Explain the different methods of Optimizing the FSMD. (6) a. Draw and explain the general purpose processor architecture. Q.4 (8) b. Explain the different addressing modes of assembly language. (8)

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Q.5	a.	Given an analog I/P signal whose voltage ranges from 0 to 15V a digital encoding, calculate the correct coding of 5V.	and 8-6 (8)
	b.	Draw hardware structure to control a stepper motor using 8051 driver.	(8)
Q.6	a.	Explain advanced DRAM designs with suitable diagram.	(10)
	b.	Explain the memory write ability/storage permanence.	(6)
Q.7	a.	Explain the basic concepts of communication protocols with example.	(8)
	b.	Compare Memory-mapped I/O vs. Standard I/O techniques.	(8)
Q.8		Write short notes on: (i) Reentrancy (ii) Samanhara Brahlama	(2, (8))
		(ii) Semaphore Problems	(2×8)
Q.9	a.	Draw the state diagram of TCP stack generation.	(8)
	b.	Draw and explain software architecture of Automatic Chocolate Machine.	Vending (8)