KUMARAGURU
college of technology
character is life

Register Number:……..

B.E DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Seventh Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

ECE147: Embedded Systems

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. An embedded system must have
   a) Hard disk
   b) processor and memory
   c) operating system
   d) processor and input-output unit(s).
2. Sophisticated embedded systems development requires
   a) IPs and several ASIPs
   b) IPs and several ASIPs, and hardware-software co-design
   c) Multi-core processors
   d) System on chip with large memory
3. HDLC is a _____protocol for a Network
   a) Data Link
   b) Network
   c) Physical
   d) None of the above
4. Touch screen is _____
   a) An input device
   b) LCD display device
   c) An input device and LCD display device
   d) Output device
5. FSR is_____
   a) a pointer
   b) a Memory
   c) Register
   d) Reader
6. PIC can have _____ different method of clock.
   a) 2
   b) 3
   c) 4
   d) 6
7. A file is a named entity on a

a) Magnetic disk
b) optical disk
c) system memory
d) Magnetic disk, optical disk and system Memory

8. RTOS is used in most embedded systems when the system does
   a) Concurrent processing of multiple real time processes
   b) Sequential processing of multiple processes when the tasks have real time constraints
   c) Real time processing of multiple processes
   d) The concurrent processing of multiple processes, tasks have real time constraints and deadlines, and high priority task preempts low priority task as per the real time constraints.
9. _____ general purpose OS.
   a) Embedded Linux is
   b) Windows XP is
   c) Embedded Linux and Windows XP
   d) None of the above are
10. RTOS μCOS-II provides_____
   a) Memory partitioning
   b) Input
   c) output
   d) Memory

PART B (10 x 2 = 20 Marks)

11. Define Embedded System.
12. List the specialties of embedded systems
13. List the important communication interfaces used in embedded systems.
14. Mention the types of data Transfer in USB Bus.
15. What is microcontroller?
16. What is Timer?
17. Define Message Queue.
18. Define Mailbox and Pipe.
19. What is a semaphore?
20. When will the error occur, while using the semaphore?

PART C (5 x 14 = 70 Marks)

21. a) Explain the basic processors and hardware units in the embedded system.

(OR)

b) Discuss in detail with necessary diagram the development and testing tools.

22. a) Explain the following parallel communication devices.
(i) ISA bus
(ii) PCI and PCI/X

(OR)

b) (i) Explain the working of timers and counters in detail. (7)

(ii) Explain the internal serial communication devices. (7)

23. a) Explain the various modes in PIC microcontroller.

(OR)

b) Draw the PIC 16C61 block diagram and explain the function of each block.

24. a) Explain the different Kernel services in operating system.

(OR)

b) Describe three alternative systems in three real time operating systems for responding to a hardware source call on interrupts.

25. a) Explain the case study of an embedded system for a smart card.

(OR)

b) Explain the RTOS programming tool MicroC/OS-II.

****