KUMARAGURU college of technology
character is life

Register Number: ……..

**B.E DEGREE EXAMINATIONS: NOV 2015**

(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. Embedded system are not always _____

   a) Standalone Devices b) Joined Devices

   c) Dependent Devices d) Non Autonomous Devices

2. _____ Provides a simulation of all aspects of hardware

   a) Emulator b) ICD

   c) ICE d) HLL

3. _____ Translates High level language (C, C++ etc.) and generates Object code (machine readable but not directly executable).

   a) Compiler b) Interpreter

   c) Linker d) Cross Compiler

4. In which type of embedded system architecture a series of tasks are defined and each task gets its own environment to run in?

   a) Multi Threading b) Simple Control Loop

   c) Interrupted Control system d) Cooperative Multitasking

5. _____ means that the tasks from a list of ready tasks are scheduled in sequence. Thus a task that is executed first now becomes a last priority task.

   a) Cyclic cooperative scheduling with time slicing b) Cooperative scheduling with precedence constraints

   c) Preemptive scheduling d) Cyclic scheduling

6. Some Embedded system provide a UI Remotely with the help of _____

   a) RS232 b) USB

   c) Both 1 and 2 d) LAN

7. Embedded middleware sits between_____

a) Embedded application and operating system
b) Embedded application and the real time operating system
c) kernel and the operating system
d) kernel and the real time operating system

8. Which of the following below are examples of peripherals?
a) Universal Serial Bus
b) Networks
c) Timers
d) All of the above

9. Which is the most commonly used languages used in embedded system?
a) C
b) C++
c) Java
d) Assembly

10. Embedded Systems communicate with the outside world through
a) Peripherals
b) Processors
c) OS
d) Microcontrollers

**PART B (10 x 2 = 20 Marks)**

11. State the main components of embedded system.
12. Choose the important considerations for selecting a processor.
13. Name classifications of I/O devices.
14. What are the two standards of USB available?
15. List the various I/O Ports and special function pins available in PIC16c6x.
16. Justify the core features of PIC16C6X.
17. What are the three common model strategies that a scheduler may adapt?
18. Why does a processor system always need an “interrupt Controller”?
19. How to assign the priority to a task?
20. Mention the function and importance of a Kernel in embedded system.

**PART C (5 x 14 = 70 Marks)**

21. a) i) Discuss the Dissimilarity between Hardware Architecture and Software Architecture (7)
ii) Classify and elucidate the categories of embedded system (7)

**(OR)**

b) i) Exemplify about the recent trends in embedded system and list out the applications (7)
ii) List the various software tools of embedded systems and its uses (7)

22. a) Explain about the $I^2C$, CAN, advanced $I_o$ buses for serial communication

**(OR)**

b) i) Explain about the ISA, PCI, PCI/X, and advanced bus for parallel communication. (10)

ii) Write short notes on serial and parallel port device. (4)

23. a) Draw the detailed architecture of PIC16c6x and explain.

**(OR)**

b) i) Explain the various types of addressing modes of PIC16c6Xwith examples. (7)

ii) Illustrate the instruction set of PIC16c6x. (7)

24. a) Explain in detail about how semaphores are handled in embedded systems.

**(OR)**

b) i) What are the functions of queues? Explain it. (7)

ii) How interrupt service routines are serviced in an embedded systems? Explain (7)

25. a) Describe the Mailbox related functions in a RTOS of your choice.

**(OR)**

b) Illustrate the case studies of digital camera and smart card in embedded systems.

**********