18EVE323

USN

Third Semester M.Tech. Degree Examination, Jan./Feb.2021
Embedded Linux System Design and Development

Time: 3 hrs.   Max. Marks:100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a. Discuss some benefits of Embedded Linux against embedded operating system. **(08 Marks)**
    b. Answer the following questions with respect to frequently asked questions:
        (i)   Is Linux Too large?
        (ii) Which Embedded Linux Distribution Do I choose on Linux? **(08 Marks)**
    c. Write any four features of TimeSys Linux. **(04 Marks)**

OR

2   a. Explain the architecture of monolithic kernel in Embedded Linux. **(08 Marks)**
    b. Briefly explain Linux start up sequence. **(08 Marks)**
    c. Discuss the execution instances that are understood by the scheduler. **(04 Marks)**

Module-2

3   a. Explain with a neat code flow of Boot loader start up sequence. **(08 Marks)**
    b. With neat diagram, explain Ethernet card IRQ connections and IRQ connections on EUREKA. **(12 Marks)**

OR

4   a. Explain the following with respect to BSP:
        (i) Timers   (ii) UART **(12 Marks)**
    b. Discuss the two power management standards. **(08 Marks)**

Module-3

5   a. Differentiate between NOR & NAND flash chips. **(08 Marks)**
    b. Explain with a neat diagram MTD architecture. **(10 Marks)**
    c. What are the uses of Flash Map? **(02 Marks)**

OR

6   a. Explain the techniques to optimize kernel memory usage. **(08 Marks)**
    b. Explain MTD Block & character devices. **(06 Marks)**
    c. Write a note on NFS [Network File System]. **(06 Marks)**

Module-4

7   a. Explain I2C software architecture. **(10 Marks)**
    b. Explain TTY subsystem in Linux Serial Drives. **(05 Marks)**
    c. Explain USB bus topology. **(05 Marks)**

OR

8   a. Write a note on watchdog times and kernel module. **(10 Marks)**
    b. Write a note on Ethernet Drives. **(10 Marks)**

Module-5

9 a. With a neat diagram, explain MMU-based Linux memory. (08 Marks)

   b. Explain one-process model and multi-process model. (12 Marks)

OR

10 a. Explain kernel API drivers [Kapi]. (08 Marks)

   b. Explain the following with respect to programming with Pthreads:

   (i)   Thread creation and Exit.

   (ii) Thread synchronization. (12 Marks)

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