**[4858] - 1084**

## T.E. (Computer Engineering)
### OPERATING SYSTEMS DESIGN
### (2012 Pattern) (Semester - I) (End Sem.)

*Time : 2 $\frac{1}{2}$ Hours]*

*[Max. Marks : 70*

***Instructions to the candidates:***

    *1)   All questions are compulsory.*
    *2)   Figures to the right indicate full marks.*

*Q1)* a)   Explain in short - BIOS, MBR and init( ) process.   **[6]**

     b)   Explain Kernel Structure. With neat diagram.   **[4]**

**OR**

*Q2)* a)   Explain with neat diagram process states and transition.   **[5]**

     b)   What is disk inode? State the difference between disk inode and in-core inode.   **[5]**

*Q3)* a)   Why is the principle of locality crucial to the use of virtual memory? Explain with example.   **[4]**

     b)   Give the details of U-area field.   **[6]**

**OR**

*Q4)* a)   Explain the race condition in assigning inodes.   **[4]**

     b)   Compare and contrast paging vs segmentation.   **[6]**

*Q5)* a)   What is ptrace system call? Explain Process tracing in detail.   **[8]**

     b)   Explain the term signal and elaborate the various circumstances under which signals of the various classes are used.   **[8]**

**OR**

*Q6)* a) Write short notes on: **[8]**

     i) Tunis System.

     ii) Shared memory.

   b) What is deadlock? Explain necessary conditions to occur the deadlock? **[8]**

*Q7)* a) What is make utility? Explain it with example. Consider your own makefile. **[8]**

   b) Explain with example Linux utilities - grep, egrep, fgrep and sort. **[8]**

<div align="center">OR</div>

*Q8)* a) Write a short note on: **[8]**

     i) Mork Manager.

     ii) Shim Manager.

   b) Explain in detail how to make USB bootable with any open source tool/ utility? **[8]**

*Q9)* a) Write a short note on: **[12]**

     i) Multiprocessor scheduling.

     ii) Real time scheduling.

     iii) Linux scheduling.

   b) Write short notes on: **[6]**

   Fail soft operation.

<div align="center">OR</div>

*Q10)* a) Write a short note on: **[12]**

     i) Palm OS.

     ii) Google Android.

     iii) Windows Mobile.

   b) Write a short notes on: **[6]**

   Frame of reference.

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