SEAT No. :

P2459

[Total No. of Pages : 2

[5253] - 182
T.E. (Computer Engineering)
OPERATING SYSTEMS DESIGN
(2012 Pattern) (Semester - I)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates :

1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*

Q1) Elaborate on the following algorithms in brief any two.   **[10]**

    a)   iget ( )

    b)   ifree ( )

    c)   namei ( )

    d)   getblk ( )

OR

Q2) a)   Describe the structure of a regular file with proper diagrammatic representation.   **[5]**

     b)   What is free space management (FSM)? Explain how bit vector and linked list performs FSM.   **[5]**

Q3) a)   Write and explain algorithms for   **[6]**

       i)   Allocating region

       ii)   Freeing a region

     b)   Elaborate on the race condition in catching signals.   **[4]**

OR

Q4) a)   Explain with example data structures used for demand paging.   **[6]**

     b)   State in brief page aging.   **[4]**

Q5) a)   Write short notes on   **[8]**

       i)   Tunis system

       ii)   Performance Limitations

     b)   Explain in short — pipe, message queues Explain multiprocessor system with it benefits.   **[8]**

Q6) a) What is ptrace system call? Explain Process tracing in detail. **[8]**

b) Provide solution to producer- Consumer process problem using semaphore. **[8]**

Q7) a) Write short note on egrep, fgrep and sort utility. **[9]**

b) Write short notes on nmake and cmake. **[4]**

c) Differentiate BIOS with EFI? **[3]**

OR

Q8) a) Write a short note on **[6]**

i) Mork Manager

ii) Shim Manager

b) What is secure boot? **[2]**

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

Q9) a) Write a note on handheld devices. List various OS used for handheld devices. **[6]**

b) Write a short note on **[6]**

i) Frame of references

ii) Windows vista scheduling

c) Draw and explain Android OS architecture. **[6]**

OR

Q10) a) Explain the design issues of multiprocessor scheduling. **[6]**

b) Explain scheduling in **[6]**

i) Linux Operating Systems

ii) UNIX free BSD OS.

c) Compare Windows NTFS and ReFS file systems. **[6]**

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