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Question Paper Code : 47116

M.E./M.Tech. DEGREE EXAMINATION, JANUARY 2018

First Semester

Computer Science and Engineering

CP 5153 – OPERATING SYSTEM INTERNALS

(Common to M.E. Computer Science and Engineering (With Specialization in Networks)/M.E. Multimedia Technology/M.Tech. Information Technology)
(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. State the objectives of Operating System.
2. Differentiate between hard link and soft link.
3. Define thread.
4. Identify the functionality of wait-Queue in Kernel.
5. Brief the role of Virtual File System (VFS) in a simple file copy operation with neat sketch.
6. What is dentry cache ?
7. Justify why “Linux adopts 4 KB page frame size as standard memory allocation unit”.
8. Mention the importance of reserved page frame in memory management.
9. Give the usage of pipes.
10. Why process credentials are important on multiuser systems ?

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PART – B

(5×13=65 Marks)

11. a) Summarize and explain the issues of memory management. (13)
(OR)
- b) i) Outline the File handling system calls. (7)
ii) How kernel control path is synchronized ? Explain. (6)
12. a) Explain process identification with suitable illustration. (13)
(OR)
- b) Demonstrate and explain the system calls used to create processes. (13)
13. a) i) With suitable sketch, explain the File model of Virtual File System. (7)
ii) Explain in detail about namespaces. (6)
(OR)
- b) i) Analyze the actions performed while unmounting a file system. (7)
ii) Specify in detail about read () and write () Virtual File System Calls. (6)
14. a) i) Examine in detail about Non-uniform memory access in memory management. (6)
ii) Illustrate and explain the components of the zoned page frame allocator with neat sketch. (7)
(OR)
- b) Explain how memory allocation is carried out using buddy system. (13)
15. a) How reading from and writing to a pipe is done ? Explain with suitable system calls. (13)
(OR)
- b) Describe the exec functions supported by Unix. (13)

PART – C

(1×15=15 Marks)

16. a) Outline how VFS Data structures are used in File System with an example of your choice. (15)
(OR)
- b) Design a Buddy system algorithm to avoid external fragmentation problem and suggest mechanism to improve the dividing and coalescing time. (15)
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