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Roll No QUESTION PAPER CODE: 47501 M.E. / M.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019 First Semester Computer Science and Engineering CP5153: 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) Maximum Marks:100 Answer ALL Questions Time: 3 Hours (10×2=20 Marks) PART-A Define a race condition. 2. What is a device driver? Give example. 3. Define a process and a thread. 4. What is a context switch? Name the three main classes file systems supported by the virtual file system may be grouped 6. How the open() system call is serviced? 7. What is non-uniform memory access? 8. Define external fragmentation. 9. What is a pipe? Present an outline of execution tracing. (5×13=65 Marks) PART-B 11. (a) What is a file system? Present an outline of the UNIX file system. (OR) (b) (i) Present an outline of kernel reentrancy and its impact on the organization of the (7)(6) (ii) Present an outline of process management in UNIX. (a) (i) Explain the possible states a process can be in. (ii) Explain the fields of a process descriptor used to express parenthood relationships with an example and a relevant diagram. (OR)

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(b) (i) When is a process 'estroyed' What happens when a process is destroyed	d? (4)
(ii) What does the do_group_exit() function do? Outline the operado_group_exit() function executes.	
13. (a) Outline the interaction between processes and virtual file system objects with a	a diagram. (13)
(OR)	
(b) Elaborate the process of unmounting a file system.	(13)
 (a) What is zoned page frame allocator? Outline the components of zoned page allocator with a diagram. 	age frame (13)
(OR)	
(b) Outline the working of buddy system algorithm with an example.	(13)
15. (a) Elaborate the operations performed by the pipe_write() function.	(13)
(OR)	(10)
(b) Elaborate how the linear address space of a UNIX program is traditionally per from a logical point of view.	artitioned (13)
$\underline{PART-C} \qquad (1\times15=1)$	5 Marks)
16. (a) Elaborate a method to implement multithreaded applications with an examp	ole. (15)
(OR)	
(b) Elaborate a method to protect a critical region with an example.	(15)

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