

**Faculty of** **Technology and Engineering**

# U & P U. Patel Department of Computer Engineering

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| Academic Year | : | 2022-23 | Semester | : | 5 |
| Course code | : | CE354 | Course name | : | Operating System |

PRACTICAL – 6

**PART A**

**AIM: The demonstration and use of fork() system call.**

Execute the given code and write output and your observation.

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| --- | --- |
| 1. |  |
| **Output:** |  |
| 2. |  |
| **Output:** |  |
| 3. |  |
| **Output:** |  |
| 4. |  |
| **Output:** |  |
| **Question 1:** | A process executes the following code:  for (i = 0; i < n; i++)  fork();  The total number of child processes created is:  (A) n  (B) 2^n – 1  (C) 2^n  (D) 2^(n+1) – 1; |
| **Answer:** | Answer: **c**  **Justification:** There will be A binary tree after this for loop Completion so if we sum all levels of the above tree for i=0 to n-1, we get 2^n. So there will be 2^n child processes. |
| **Question 2:** | Consider the following code fragment:  if (fork() == 0)  {  a = a + 5;  printf("%d, %d\n", a, &a);  }  else  {  a = a –5;  printf("%d, %d\n", a, &a);  }  Let u, v be the values printed by the parent process, and x, y be the values printed by the  child process. Which one of the following is TRUE?  (A) u = x + 10 and v = y  (B) u = x + 10 and v != y  (C) u + 10 = x and v = y  (D) u + 10 = x and v != y |
| **Answer:** | Answer **:C)**  Fork() return o in child process anf process ID of child process in parent process.  In child (x), a=a+5  In parent(u), a=a-5;  Therefotr x=u+10;  The physical addresses of ‘a’ in parent and child must be different. But our program accesses virtual addresses(assuming we are running on an OS that uses virtual memory).The Child process gets an exact copy of the parent process and the virtual address of ‘a’ doesn’t change in the child process. Therefore, we getsame addresses in both parent and child and v and y will not be equal. |