**OPERATING SYSTEM (PRACTICALS) – FALL 2012**

**EXPERIMENT 3 – PROCESS**

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| **DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | **Students Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| **Marks Obtained: \_\_\_\_\_** | | **COURSE: BESE 16 \_\_\_\_\_** | |
| **Deadline: 1400 hrs 8th Oct 2012** | | **Instructor: Engr. Umar Mahmud** | |
|  | **Instructions**   * This lab is to be performed by a syndicate of at most **TWO** students. Write your remarks next to the space provided. * Plagiarism is strictly forbidden. * Submit hard copy of the report before deadline. Marks will be deducted for late submissions. | |  |
| 1. | **Objectives:**   1. Creating process in Java. 2. Destroying processes in Java | |  |
| 2. | **Time Required:** 3 hrs | |  |
| 3. | **Software Required:**   1. Windows OS 2. NetBeans 7.2/JCreator | |  |
| 4. | **Process** is a program in execution; process execution must progress in sequential fashion. A process includes a program counter , stack and data section | |  |
| 5. | Check the PID of WINWORD.EXE on your machine and write it here \_\_\_\_\_\_\_\_\_\_\_ | |  |
| 6. | Close the WINWORD application, restart WINWORD after 1 minute and write the PID here \_\_\_\_\_\_\_\_\_\_ | |  |
| 7. | What is your observation in points 5 and 6? | | (2) |
| 8. | **Getting PID of JVM through Java:** For the given code show what is the output  import java.util.\*;  import java.io.\*;  import java.lang.management.\*;  public class JavaPID {  public static void main(String args[]){  try{  System.out.println(ManagementFactory.getRuntimeMXBean().getName());  }  catch (Exception t){  t.printStackTrace();  }  }  } | |  |
| 9. | Describe what you understand from the output in point 8. | | (2) |
| 10. | In command prompt type **mspaint** and what is the output? | | (1) |
| 11. | **Creating a Process in Java:** A number of methods exist in Java to create a process. We will follow the method through Java Process class. For the given code  import java.util.\*;  import java.io.\*;  import java.lang.management.\*;  public class JavaExec {  public static void main(String args[]){  try {  System.out.println(ManagementFactory.getRuntimeMXBean().getName());  Runtime rt = Runtime.getRuntime();  Process proc = rt.exec("mspaint"); // execute mspaint  Thread.sleep(5000); // system sleeps for 5 seconds  proc.destroy(); // close mspaint  }  catch (Exception t){  t.printStackTrace();  }  }  } | |  |
| 12. | What is the output of point 11? | | (2) |
| 13. | Now open Calculator and Freecell application using the same method | |  |
| 14. | To get the exit value modify the code as follows  import java.util.\*;  import java.io.\*;  import java.lang.management.\*;  public class JavaExec {  public static void main(String args[]){  try {  System.out.println(ManagementFactory.getRuntimeMXBean().getName());  Runtime rt = Runtime.getRuntime();  Process proc = rt.exec("mspaint"); // execute mspaint  Thread.sleep(5000); // system sleeps for 5 seconds  proc.destroy(); // close mspaint  int exitVal = proc.waitFor();  System.out.println("Process exitValue: " + exitVal);  }  catch (Exception t){  t.printStackTrace();  }  }  } | |  |
| 15. | What is the output of point 14? | |  |
| 16. | Re-execute point 14 but close the application in windows before the time expires. Write the output here. | |  |
| 17. | What is your observation in Points 15 and 16? | | (2) |
| 18. | What did you learn in this experiment? | | (1) |