Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17CA2045** | **Duration :** | **3hrs** |
| **Sub. Name :** | **OPERATING SYSTEM AND ITS SECURITY** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Define spooling. | CO1 | 1 |
| b. | Memory is arranged in the disk in the form of   1. Sectors b. Blocks c. fragements d. tracks | CO1 | 1 |
| c. | Compare network and distributed operating system. | CO1 | 2 |
| d. | Write a short note on Booting Process. | CO2 | 2 |
| e. | Describe various generations of hardware and programming languages in conjunction of development of Operating System. | CO1 | 14 |
| (OR) | | | | |
| 2. | a. | Define system calls. | CO2 | 1 |
| b. | The control is transferred to programs in after turning “on” the computer.  a. ROM b. RAM c. EPROM d. DRAM | CO2 | 1 |
| c. | Write a short note on Kernel. | CO1 | 2 |
| d. | List down the systems calls related to processing management. | CO2 | 2 |
| e. | Explain how the operating system has evolved from simple structure to virtual machine. | CO1 | 14 |
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| 3. | a. | Define I/O procedure. | CO3 | 1 |
| b. | State the difference between symmetrical and asymmetrical path. | CO3 | 1 |
| c. | Construct a symmetrical path using two channels, two control unit and two devices. | CO3 | 2 |
| d. | Write a short note on I/O channel. | CO3 | 2 |
| e. | Explain the working of CD-ROM with help of a block diagram. | CO3 | 14 |
| (OR) | | | | |
| 4. | a. | Define seek time. | CO2 | 1 |
| b. | The Device Driver is a  a. software b. hardware c. interrupt d. system call | CO3 | 1 |
| c. | List down the information maintained by Input/Output Request Block. | CO3 | 2 |
| d. | Give reasons for occurrence of interrupts. | CO2 | 2 |
| e. | Assume that the Read/Write head is currently positioned at track 60. Apply the disk scheduling algorithms for the requests those reads data from the tracks in the order given below:  105, 199, 45, 170, 28, 188, 38, 59. | CO3 | 14 |
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| 5. | a. | Define time slice. | CO2 | 1 |
| b. | A running process enters when it encounters an I/O instructions.   1. Ready state b. blocked state c. dispatchstate d. kill state | CO4 | 1 |
| c. | Draw the process state transition diagram. | CO2 | 2 |
| d. | Summarize the basic system calls or routines for process state transitions. | CO4 | 2 |
| e. | Discuss the procedure of process creation and process deletion in detail. | CO4 | 14 |
| (OR) | | | | |
| 6. | a. | Define DRAG. | CO4 | 1 |
| b. | State the difference between ready state and blocked state. | CO4 | 1 |
| c. | Draw diagram for context switching. | CO4 | 2 |
| d. | Draw flowchart for UP(S) routine. | CO4 | 2 |
| e. | What are semaphores? How do they implement Mutual Exclusion? What are the different types of semaphores? | CO4 | 14 |
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| 7. | a. | Define working set. | CO2 | 1 |
| b. | State the difference between Second Chance algorithm and Not Recently Used algorithm. | CO5 | 1 |
| c. | Write short note on page replacement policies. | CO5 | 2 |
| d. | Write a short note on Demand Paging. | CO5 | 2 |
| e. | Discuss how the address translation and relocation processes are handled in segmentation. | CO5 | 14 |
| (OR) | | | | |
| 8. | a. | Chunks of different sizes is called .  a. Paging b. Segmentationc. fragmentation d. Dynamic partition | CO5 | 1 |
| b. | Define compaction. | CO5 | 1 |
| c. | Write a short note on Cache Management. | CO5 | 2 |
| d. | Explain briefly Page Fault Frequency. | CO5 | 2 |
| e. | Assume that pages are referenced in the order given below  8, 1, 2, 3, 1, 4, 1, 5, 3, 4, 1, 4, 3, 2, 3  Apply OPT, FIFO and SC algorithms. | CO5 | 14 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Define authentication. | CO6 | 1 |
| b. | State the difference between authentication and authorization. | CO6 | 1 |
| c. | List down the various categories of security threats. | CO6 | 2 |
| d. | Short note on the elements of security. | CO6 | 2 |
| e. | Outline the different ways the security system of a computer could be attacked and penetrated. | CO6 | 14 |