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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination – June – 2017**

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| **Code :** | **14CS2037** | **Duration :** | **3hrs** |
| **Sub. Name :** | **OPERATING SYSTEM** | **Max. marks :** | **100** |

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

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. |  | Discuss the various multithreading models. Examine the issues to be considered in designing a multithreaded programs. | CO1 | 20 |
| (OR) | | | | |
| 2. |  | Categorize and explain about the computer system architecture according to the number of general purpose processors used. | CO1 | 20 |
| 3. |  | Define a process. Review the various states of a process and the process control block. | CO1 | 20 |
| (OR) | | | | |
| 4. |  | Consider the following set of processes, with the length of the CPU- burst time given in milliseconds.   |  |  |  | | --- | --- | --- | | Process | Burst Time | Priority | | P1 | 10 | 3 | | P2 | 1 | 1 | | P3 | 2 | 3 | | P4 | 1 | 4 | | P5 | 5 | 2 |   The processes are assumed to have arrived in the order P1, P2, P3, P4, P5, all at time 0.   1. Draw 4 Gantt chart that illustrate the execution of these processes using FCFS, SJF, a non-preemptive priority (a smaller priority number implies a higher priority), and RR (quantum=1) scheduling. 2. Calculate the waiting time of each process for each of the scheduling algorithm in part a? 3. Which of the algorithms in part a results in the minimum average waiting time? | CO2 | 20 |
| 5. |  | A semaphore can be used as a synchronization tool. Justify | CO3 | 20 |
| (OR) | | | | |
| 6. |  | Describe deadlock avoidance highlighting on safe state and Banker’s algorithm. | CO3 | 20 |
| 7. |  | Research the basic concept of demand paging and show the steps in handling a page fault. | CO3 | 20 |
| (OR) | | | | |
| 8. |  | Consider the following requests are in the disk queue:  98, 183, 37,122, 14, 124, 65, 67 (head starts at 53)  Analyze the procedure to provide services for above request sequence with the help of different disk scheduling algorithms. | CO2 | 20 |
|  | | **Compulsory:** |  |  |
| 9. |  | List the three major methods of allocating disk space. Explain | CO1 | 20 |