Exam No: _____

GANPAT UNIVERSITY

B. TECH SEM-IV COMPUTER SCIENCE AND BUSINESS SYSTEMS

FIRST INTERNAL EXAMINATION – FEBRUARY-MARCH 2023

2CSBS4101: Operating System

TIME: 1 Hour **TOTAL MARKS: 20**

Instructions:
1) Figures to the right indicate full marks.
2) Be precise and to the point in your answer.
3) The text just below marks indicates the Course Outcomes (CO) Numbers, followed by the Bloom's taxonomy level of the question,
i.e., R: Remembering, U: Understanding, A: Applying, N: Analysing, E: Evaluating, C: Creating.

Q.1 A Rank the following storage systems from slowest to fastest: **[2]**
a. Hard-disk drives b. Registers c. Optical disk d. Main memory e. Nonvolatile memory f. Magnetic tapes g. Cache **1U**

Q.1 B Which of the following instructions should be privileged? **[2]**
a. Set value of timer. b. Read the clock. c. Clear memory. d. Issue a trap instruction. e. Turn off interrupts. f. Modify entries in device-status table. g. Switch from user to kernel mode. h. Access I/O device. **1U**

Q.1 C What is a bootstrap program? Where it is stored? **[2]** **1R**

Q.1 D Describe layout of a process in main memory. Explain process state diagram in details. **[4]** **1U**

Q.2 A Consider logical address space containing 16 pages and main memory divided into 64 frames. If page size is 2048 bytes, then How many bits are in logical address and physical address? **[2]** **3A**

Q.2 B Define Hit Ratio. The access time of physical memory is 150 nanoseconds and TLB access time is 75 nanoseconds. Calculate Effective Access Time (EAT), If 25% of times, page not found in TLB. **[4]** **3A**

Q.2 C Given memory partitions of 120k,540k,230k,350k and 600k (in order), How First Fit, Best Fit and Worst Fit algorithms works to place processes of 222k, 470k, 150k and 450k (in order). Also write which algorithm make most efficient use of memory. **[4]** **3N**

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