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| EWULogo.png | | **EAST WEST UNIVERSITY** | | |
| **Department of Computer Science and Engineering** | | |
| **B.Sc. in Computer Science and Engineering Program** | | |
| **Mid Term II Examination, Summer 2020** | | |
| **Course:** | | **CSE360 – Computer Architecture, Section1`** | |  |
| **Instructor:** | | **Md. Nawab Yousuf Ali, PhD, Associate Professor, CSE Department** | |  |
| **Full Marks:** | | **20** | |  |
| **Time:** | | **1 Hour** | |  |
| **Note:** There are SIX questions, answer ALL of them. Course Outcome (CO), Cognitive Levels and Mark of each question are mentioned at the right margin. | | | | |
| 1. | Consider the hit ratio is 0.7 and the access times for cache memory and main memory are 150 ns and 1800 ns respectively, what is the average memory access time in ns for the CPU? | | [ CO2, C3, Mark: 3] | |
| 2. | Assume that the access time is 120ns and the recharge time is 60ns.   1. What is the memory cycle time? 2. What is the maximum data rate this DRAM can sustain, assuming a 1-bit output? 3. Constructing a 64-bit memory system using these chips yields what data transfer rate? | | [ CO2, C3, Mark: 1+2+1] | |
| 3. | Consider a magnetic disk drive having the following specifications   |  |  | | --- | --- | | Rotational speed | 6000 rotations /minute | | Bytes/track | 15000 bytes /track | | Average seek time | 45 milliseconds |  1. What is the average rotational latency? 2. What is the data transfer rate? 3. What is the average access time for reading a data block 2500 bytes? | | [ CO2, C5, Mark: 2+2+3] | |
| 4. | A hard disk has 600 cylinders, 40 tracks per cylinder, 60 sectors per track and 1KB can be stored in one sector. What is the capacity of the hard disk? | | [CO2, C3, Mark: 2] | |
| 5. | A magnetic disk has an average seek time of 5 ms. The transfer rate is 50 MB/sec. The disk rotates at 10,000 rpm and the controller overhead is 0.2 ms.   1. Calculate the average time to read or write 1024 bytes 2. Calculate how many platters are required for a 80GB disk if there are 512 bytes/sector, 1024 sectors/track and 4096 tracks per platter | | [ CO2, C6, Mark: 2+2] | |