

Module 4COSC004W Computer Systems Fundamentals In-Class Test 1 & 2 (2023)

Instructions:

1. You have **60 mins** to complete this test
2. You only have **ONE** attempt at this test .
3. **Questions are randomized**, so do not bother trying to copy or help any of your colleagues.
4. Do **NOT** navigate to any other site in that tab or close the browser once you have started the test.
5. Do **NOT** use the browser *Back* button during the test.
6. All the questions are in the browser window in front of you, so scroll up and down to navigate between the questions.
7. If the browser crashes or you lose connection, you **will be able** to go back and continue the test, **but the clock will continue ticking**.
8. This is a closed **book test**
9. You are **NOT** allowed to have any notes, lecture slides, tutorial exercises, practice test or any other materials with you during the test.
10. You are **NOT** allowed to use any communication device during the test
11. You are **NOT** allowed to have more than one window open on your computer – that will be a browser with a single tab for the Blackboard test. Blackboard will open any extra required tabs as required.
12. You are **NOT** allowed to use a calculator.
13. You may use a blank paper for rough work .
14. The multiplication tables below are supplied to help you do the calculations quicker, you may print this page .
15. The tables on the next page provide details of the relevant items in the Disk Sector Zero and the Partition Sector Zero. I have shaded the items that you are not required to use.
16. Once you complete the test and submit, leave the room quietly by the closest available exit.
17. Note that the closest exit may be behind you.
18. If you leave the room during the test, you will not be allowed back in to continue the test.
19. You will not be able to continue the test in another room.
20. Provisional grades will be made available on Friday afternoon at 1600.
21. There a total of 100 marks, in 12 Questions – different questions may have different weightings.
22. This assessment take place under the auspices of Academic Regulations Section 10.
23. As in all examinations, any suspected cases of academic misconduct will be investigated and reported.

Multiplication tables:

1048576 table		65536 table		4096 table		256 table		16 table	
1	1048576	1	65536	1	4096	1	256	1	16
2	2097152	2	131072	2	8192	2	512	2	32
3	3145728	3	196608	3	12288	3	768	3	48
4	4194304	4	262144	4	16384	4	1024	4	64
5	5242880	5	327680	5	20480	5	1280	5	80
6	6291456	6	393216	6	24576	6	1536	6	96
7	7340032	7	458752	7	28672	7	1792	7	112
8	8388608	8	524288	8	32768	8	2048	8	128
9	9437184	9	589824	9	36864	9	2304	9	144
10	10485760	10	655360	10	40960	10	2560	10	160
11	11534336	11	720896	11	45056	11	2816	11	176
12	12582912	12	786432	12	49152	12	3072	12	192
13	13631488	13	851968	13	53248	13	3328	13	208
14	14680064	14	917504	14	57344	14	3584	14	224
15	15728640	15	983040	15	61440	15	3840	15	240

Disk Sector Zero – Partition Table Entry Locations		
Byte Range:	Description:	Essential:
0 – 445	Boot code	No
446 – 461	Partition Table Entry No. 1	Yes
462 – 477	Partition Table Entry No. 2	Yes
478 – 493	Partition Table Entry No. 3	Yes
494 – 509	Partition Table Entry No. 4	Yes
510 -511	Signature Value 0xAA55	Yes

Disk Sector Zero – Partition Table Entry Details		
Byte Range:	Description:	Essential:
0 – 0	Bootable flag	No
1 – 3	Starting CHS Address	Yes
4 – 4	Partition Type	Yes
5 – 7	Ending CHS Address	Yes
8 – 11	Starting LBA Address	Yes
12 – 15	Size in Sectors	Yes

Type values for DOS Partitions	
Type:	Description:
0x00	Empty
0x01	FAT12
0x04	FAT 16, 16 - 32 MB
0x06	FAT 16, 32 MB – 2GB
0x07	NTFS
0x0b	FAT32
0x0c	FAT32
0x82	Solaris x86
0x83	Linux

FAT Partition – Details of the First 36 Bytes in the FAT Partition Boot Sector	
Byte Range:	Description:
0 – 2	Assembly instruction to jump to boot code needed to boot the operating system
3 – 10	OEM Name in ASCII
11 – 12	Bytes per sector. Allowed values are 512, 1024, 2048 and 4096
13 – 13	Sector per cluster (data unit). Allowed values are powers of 2
14 – 15	Size in sectors of the reserved area
16 – 16	Number of FATs. Typically 2 for redundancy
17 – 18	Maximum number of files in the root directory for FAT12 and FAT16. This is 0 for FAT32 and typically 512 for FAT16.
19 – 20	16-bit value of number of sectors in the partition. If the number of sectors is larger than can be represented in this 2-byte value, a 4-byte value exists later in the data structure and this value should be 0 in that case
21 – 21	Media type. For fixed disks, value is 0xF8, for removable value is 0xF0
22 – 23	16-bit size in sectors of each FAT for FAT12 and FAT16. For FAT32, this field is 0
24 – 25	Sectors per track of storage device
26 – 27	Number of heads in storage device
28 – 31	Number of sectors before the start of partition
32 - 35	32-bit value of number of sectors in partition. Either this value or the 16-bit value above must be 0
<i>Note:</i>	Do not forget that any non-ASCII items are displayed in <i>Little-Endian</i> format

Class table				
Class:	Host address range: (Den)	First Byte: (Bin)	CIDR:	Network Mask: (Den)
A	1.0.0.0 to 126.255.255.255	0### #####	/8	255.0.0.0
B	128.0.0.0 to 191.255.255.255	10## #####	/16	255.255.0.0
C	192.0.0.0 to 223.255.255.255	110# #####	/24	255.255.255.0
D	224.0.0.0 to 239.255.255.255	1110 #####		(multicast)
E	240.0.0.0 to 255.255.255.255	1111 #####		(reserved)