

Computer Systems Administration

TE2003

August 16 2010

0900-1300

IDE, Halmstad University

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Grades: Part 1, 75% => 3
Part 2, 75% => 4
Part 3, G => 5

For the grade 4 it is required that you get grade 3,
for the grade 5 it is required that you get both grade 3 and 4.

Allowed tools:

Pencil and eraser.

Tools according to the central regulations.

Important! Read the instructions on next page carefully before you start!

INSTRUCTIONS

Selections is marked with a X in the correct box, from corner to corner. Incorrect marks are erased. Numbers in personal ID and number answers are written as numbers and then coded as follows:

0	1	2	3	4	5	6	7	8	9
X		/	-	∩	∪	∩	-	∩	+

Please note:

Note down your answers in the questionnaire. When you are finished you transfere the answers to the answer sheets.

All answer sheets must be handed in. The questionnaire is kept or discarded.

Write and code personal ID on every answer sheet. Empty ones too.

Don't forget to code number answers. Empty squares are filled out with zeroes by default.

Examples of filled in forms is available with the exam guard if anything is unclear.

Part 1 is filled in on the answer sheet part 1, part 2 and 3 is written in free form on empty sheets.

The course responsible will visit the exam approximately 1 hour after start.

Good luck!

PART 1 – GRADE 3 – 75% TO PASS – USE FORM 1 AND 2 TO GIVE ANSWERS

1. Which device contains the most mechanical parts?

- A. Optical mice and ball mice contain the same amount of mechanical parts.
- B. A ball mouse.
- C. An optical mouse.
- D. Neither optical mice or ball mice contain mechanical parts.

2. How do you remove an empty folder C:\test?

- A. C:\test del /r
- B. C:\test rd
- C. del /r C:\test
- D. rd C:\test

3. What is the smallest storage unit for a file on a hard disk drive?

- A. Cylinder.
- B. Cluster.
- C. Sector.
- D. Track.

4. Which of the following statements about disk utilities is incorrect?

- A. CHKDSK checks the physical disk for problems.
- B. FDISK provides disk partitioning functions.
- C. Disk Defragmenter takes fragmented data and puts it back together, giving free disk space.
- D. None of the above.

5. What is a FRU?

- A. Fire Reduction Utility
- B. Failed Removable Unit
- C. Free Reigning Usability
- D. Field Replacable Unit

6. A simple pipeline splits the processing of an instruction into at least four steps or stages in the following order

- A. Decode, fetch, execute, and write.
- B. Decode, fetch, write, and execute.
- C. Fetch, decode, execute and write.
- D. Fetch, execute, decode, and write.

7. What is the smallest writeable unit of a harddrive?

- A. A vector.
- B. A sector.
- C. A cluster.
- D. A buster.

8. Level 1 in OSI is:

- A. the physical level.
- B. the traffic level.
- C. the application level.
- D. the transport level.

9. A(n) _____ is a collection of user accounts that share the same access capabilities.

- A. heap
- B. user
- C. root
- D. group

10. What is correct for a laser printer?

- A. It contains a 1000V power supply.
- B. The color comes from solid wax sticks that are melted.
- C. The printing process is very similar to the ink jet printing process.
- D. Laser printers cannot print ascii characters so they use the ascii-L character set instead. The

11. Which of the following would prove more damaging to a CD-RW?

- A. Scratching the bottom.
- B. Power failure during writing.
- C. Scratching the top.
- D. Power failure during reading.

12. The ozone filter in a laser printer has the purpose to:

- A. Protect sensitive parts of the printer.
- B. Protect humans.
- C. Protect the environment.
- D. All of the above.

A or D

13. The MP3 format is:

- A. all of the above.
- B. proprietary.
- C. a lossy format.
- D. compressing data.

14. Which of the following statements about RAM is incorrect?

- A. RAM is sensitive to electrostatic discharge.
- B. DRAM does not need periodic refresh.
- C. SRAM does not need periodic refresh.
- D. Parity and ECC are methods for error checking in RAM.

15. What is the default subnet mask for Class C addresses?

- A. 255.255.255.0
- B. 255.255.0.0
- C. 255.0.0.0
- D. 255.255.255.255

16. What does "soft power" mean?

A. A PSU that smoothes out power spikes.

C. The ability to control the power consumption in small increments.

B. The ability to switch off the power from software

D. A PSU that consumes less energy.

17. What is POST?

A. Log messages.

C. Error messages.

B. The last stage of the boot process.

D. The initial stage of the boot process.

18. The LCD is extremely dark. You can barely spot moving objects. The most likely problem is:

A. damaged back light.

C. no signal.

B. broken lcd panel.

D. no power.

19. What is the first step in a pipeline?

A. Decode.

C. Execute.

B. Fetch.

D. Write.

20. What is required to be able to boot from USB?

A. BIOS support only.

C. It is not possible to boot from USB.

B. A bootable USB device only.

D. BIOS support and a bootable USB device.

21. A(n) _____ is a fix for a single problem in the operating system.

A. driver

C. service pack

B. update

D. patch

22. Random Access Memory means that

A. memory cells can be accessed in random order.

C. the delay for accessing memory cells are constant.

B. the delay for accessing memory cells are random.

D. memory cells must be accessed in sequential order.

23. SSID is:

A. a network protocol.

C. a storage (disk) with no moving parts.

B. an unique storage identifier.

D. the "name" of a wireless networks accesspoint.

24. How do you "get a prompt"?

- A. Start->Run->"cmd"
- B. Start->Run->"prompt"
- C. Press and hold Windows-R
- D. Press and hold Windows-P

25. Why should you not cool harddrives?

- A. Fans add magnetic fields.
- B. Harddrives are supposed to work at a higher temperature.
- C. Harddrives are supposed to work at an even temperature.
- D. Fans add sound and noise.

26. A KVM-switch makes it possible to:

- A. Attach one mouse to two computers.
- B. Attach one computer to two networks.
- C. Attach two mice to one computer.
- D. Attach two computers to one network.

27. Which of the following statements about file systems is incorrect?

- A. NTFS supports file compression.
- B. NTFS is compatible with systems using old windows versions such as Windows 95, 98, and Me.
- C. NTFS support file sizes greater than 4GB.
- D. NTFS supports user quotas.

28. A screen has a vertical refresh rate of 50 Hz. What does that mean?

- A. The picture is redrawn 50 times a second.
- B. It takes 50 seconds to redraw the picture.
- C. It takes 50 seconds to redraw a raster line.
- D. The raster lines are drawn drawn with a rate of 50 times a second.

29. Where is the partition table found?

- A. In all of the above.
- B. In the VBR.
- C. In the MBR.
- D. In the registry.

30. What technology is used to reduce cost in laptop computers?

- A. Dual video cards.
- B. USB memory.
- C. Shared memory.
- D. Dual processors.

31. What is the name of the super user account in Windows?

- A. root
- B. toor
- C. Superuser
- D. Administrator

32. What is the purpose of S.M.A.R.T.?

- A. Controlling.
- B. Reducing energy consumption.
- C. Increasing performance.
- D. Monitoring.

33. How many magnetic discs are there in the typical SSD drive (=produced after 2005)?

- A. 4
- B. 1
- C. 2
- D. 0

34. Which technique allows modern CPU's to conserve power or/and avoid overheating?

- A. CPU throttling
- B. Dual Core
- C. Clock-multiplying CPU
- D. Wait state

35. Boot device order is set where?

- A. PCI
- B. BIOS
- C. Startup
- D. Registry

36. _____ is something you can kick.

- A. An operating system
- B. A driver
- C. Hardware
- D. Software

37. What voltage does the power supply typically supply?

- A. 12 V
- B. 3.3 V
- C. All of the above.
- D. 5 V

38. What is the purpose of RAID 1?

- A. Redundancy.
- B. None of the above.
- C. Capacity.
- D. Redundancy and capacity.

39. What is a page file?

- A. Where data that don't fit in RAM will go.
- B. Where data is stored before printing.
- C. Where data is stored before it is sent to the mail client.
- D. Where data from RAM is stored during hibernation.

40. When you issue a ping to a host and get a number back, such as 11ms, you can tell that:

- A. there is a link to the target system and that the target system is alive.
- B. the target system is alive.
- C. none of the above.
- D. there is a link to the target

41. To be able to use your newly installed Windows over time you have to:

- A. Activate.
- B. Register.
- C. Register and activate.
- D. None of the above.

42. What is the main purpose of a pipeline?

- A. Increase the number of commands per time unit.
- B. Decrease the number of commands per time unit.
- C. Increase the time spent per command.
- D. Decrease the time spent per command.

43. Where does most USB devices get their power?

- A. USB devices does not need power.
- B. Self powered by AC.
- C. Self powered by DC.
- D. From the USB bus.

44. A laptop is advertised to have a weight of 2.1 kg. This includes:

- A. The PC including the battery and removable drives.
- B. The PC excluding the removable drives.
- C. The PC excluding the battery.
- D. The PC excluding battery and removable drives.

45. You are having problems with the speed of the network. When you look at the switch you notice that for each cable connected to the switch there is a little blinking light. For some of the cables this light is green and for some it is yellow. What does this indicate?

- A. There is no functional difference. The lights just indicate different physical ports.
- B. That the links are communicating at different speed.
- C. That the link latency is lower.
- D. That the link latency is higher.

46. You measure the 3V and 12V on a PSU. The measurements are 2,54V and 12,5V. Which of the voltages are within 10% of their optimal target?

- A. 2,54V but not 12,5V
- B. Neither 2,54V or 12,5V
- C. 2,54V and 12,5V
- D. Not 2,54V but 12,5V

47. What is the command to copy a file in the windows command shell?

- A. c
- B. copy
- C. cop
- D. cp

48. Which of the following interfaces is mainly used for video signals?

- A. eSata
- B. USB
- C. FireWire
- D. VGA

49. In what order should hardware and drivers be installed?

- A. Hardware first, driver last.
- B. As described in the manual.
- C. Driver first, hardware last.
- D. None of the above.

50. What increase signal strength for a single node the most in a WiFi network?

- A. Changing to an undirected antenna.
- B. Changing to a directed antenna.
- C. Changing to a larger antenna.
- D. Changing to a smaller antenna.

PART 2 – GRADE 4 – 75% TO PASS – USE PLAIN PAPER FOR ANSWERS

1. Rank the following 1-4 according to increasing capacity.

- A BlueRay Disc 4
- B DVD 3
- C CD 2
- D Floppy disc 1

2. Rank the following 1-4 according to increasing file size for 10 seconds of a given song.

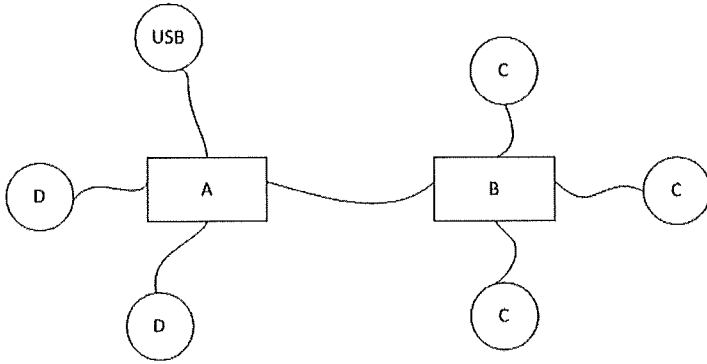
- A MIDI 1
- B MP3 2
- C FLAC 3
- D WAV 4

3. Rank the following 1-4 in order of increasing security.

- A WPA 2 4
- B WPA 3
- C Open network. 1
- D WEP 2

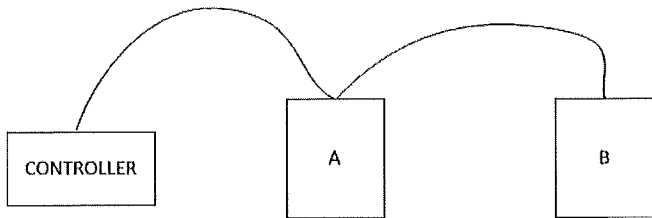
4. Rank the following 1-4 in order of increasing capacity.

- A USB 2
- B RS-232 serial link 1
- C Gigabit Ethernet 3
- D SATA 4



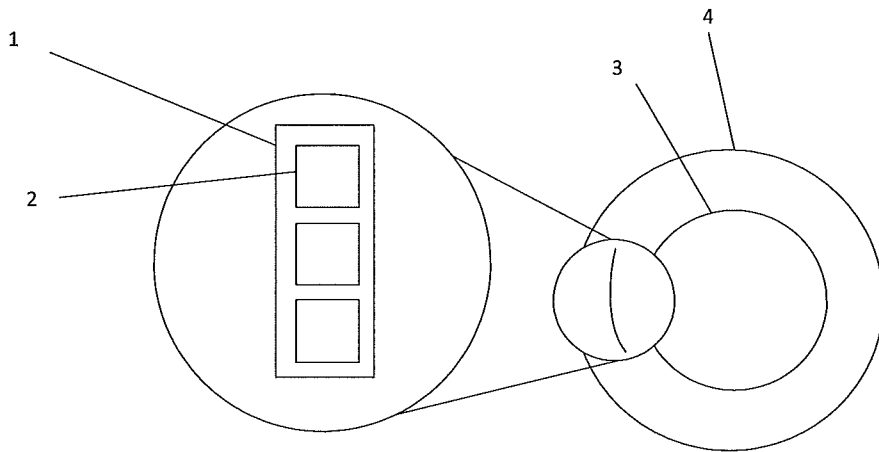
5. Match the labels with the correct titles. To get you started I filled in USB at the right position.

- 1. AGP C
- 2. CPU C
- 3. South bridge A
- 4. RAM C
- 5. BIOS D
- 6. North bridge B
- 7. PCI D



6. This is a PATA controller with two discs. Set the jumpers correctly.

- 1. Slave A
- 2. Master B

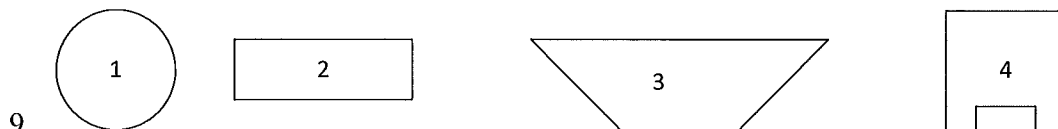


Match the following artifacts.

- A. Disc 4
- B. Cluster 1
- C. Sector 2
- D. Track 3

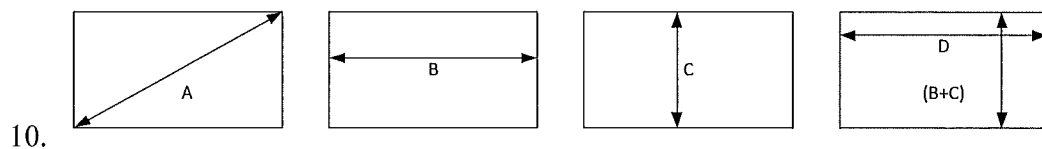
8. Rank the following 1-4 in order of increasing power consumption.

- A. USB stick 2
- B. Mouse 1
- C. CPU 3
- D. 500W PSU at full load 4

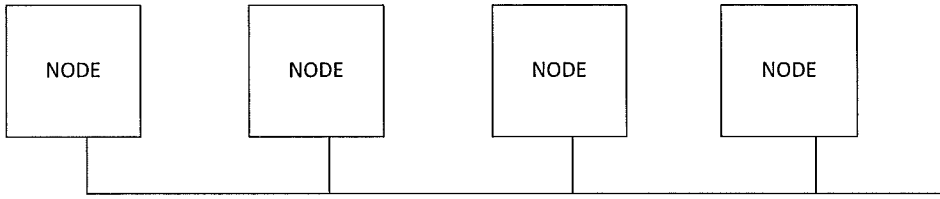


9. Match the connectors with the correct label.

- A. P/S 2 1
- B. RJ45 4
- C. DSUB 3
- D. USB 2



10. A certain moitor is 19". What illustration represents that measurement? A



11. This is:

- A. a ring topology.
- B. a mesh topology.
- C. a bus topology.
- D. a star topology.

12. What is the largest file size that could be used under FAT32?

- A. 4 GB
- B. 2 GB
- C. 5 GB
- D. 3 GB

$$4 \cdot 10^6 \text{ bit/s} = 5 \cdot 10^5 \text{ Byte/s}$$

↑

13. Approximately how long will it take to download 1400 MB using a 4 MBit/s connection at full speed?

- A. 5 minutes
- B. 90 minutes
- C. 45 minutes
- D. 15 minutes

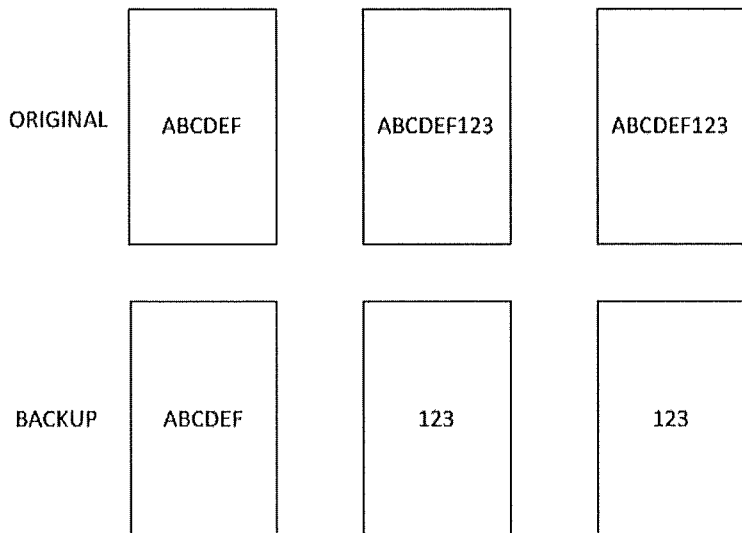
$$\frac{14000 \cdot 10^6}{5 \cdot 10^8} \approx 3000 \text{ s.} \quad (2800 \text{ s.})$$

14. The following is taken from ipconfig /all:

Y: 00-50-56-C0-00-01
 X: No
 ?: 192.168.244.1
 ?: 255.255.255.0

X is "DHCP is enabled", what is Y?

- A. Default gateway
- B. IP-adress
- C. IP-subnet
- D. MAC-adress



15. The illustration shows:

- A. Recursive backup.
- B. Incremental backup.
- C. Differential backup.
- D. Full backup.

16. Rank the following 1-4 in order of increasing number of maximum nodes.

- A SATA 1
- B SCSI SPI 3
- C USB 4
- D PATA 2

PART 3 – GRADE 5 – USE MAXIMUM ONE SINGLE SIDED A4 SHEET FOR ANSWER.

REQUIREMENTS: TO GET THE GRADE 5 YOU MUST BE ABLE TO SHOW A DEEP UNDERSTANDING OF THE SUBJECT AND BE ABLE TO DISCUSS AND ARGUE AROUND THE TOPIC USING THE CORRECT TERMS AND CORRECT JUDGEMENT. IN OTHER WORDS: BEING CORRECT IS NOT ENOUGH TO PASS THIS PART – YOU ALSO HAVE TO CONVINCE THAT YOU POSSESS A DEEP UNDERSTANDING OF THE SUBJECT.

Instructions: Pick one of the topics below and write a relevant statement of no more than 1120 characters, white space included, one character in each square. Write a sketch first, and then transfer it to the answer sheet.

1. The benefits and drawbacks of pipelining.
2. Computer systems trouble shooting.
3. Network problems.
4. Different types of audio processors and audio interfaces.
5. Ink jet printing.
6. Optical disc storage.
7. System and processor cooling.
8. External buses.
9. Magnetic disc storage.
10. Portable vs. stationary computers.