

Computer Systems Administration

TE2003

October 26 2016

0900-1300

IDE, Halmstad University

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. N and T in personal numbers is coded as the number 1.

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 the answer sheet.

EXAMPLE:

Personal ID 790215-1234

Part 1: Q1 = A, Q2 = B, Q3 = 3, Q4 = 4

Part 2: Q1, A=1, B=3, C=2, D=4

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| 7 | | | | | | | X | | | |
| 9 | | | | | | | | | X | |
| 0 | | | | | | | | | | X |
| 2 | | X | | | | | | | | |
| 1 | X | | | | | | | | | |
| 6 | | | | X | | | | | | |
| 1 | X | | | | | | | | | |
| 2 | | X | | | | | | | | |
| 3 | | | X | | | | | | | |
| 4 | | | | X | | | | | | |



PAI

PART 1

| | | | | |
|---|---|---|---|---|
| | A | B | C | D |
| 1 | X | | | |
| 2 | | X | | |
| 3 | | | X | |
| 4 | | | | X |

| | | | | |
|---|---|--|--|--|
| 2 | 1 | | | |
| 2 | 2 | | | |
| 2 | 3 | | | |
| 2 | 4 | | | |

| | | | | |
|---|---|---|---|---|
| 1 | A | B | C | D |
| 1 | X | | | |
| 2 | | | X | |
| 3 | | X | | |
| 4 | | | | X |

| | | | | |
|---|---|---|---|---|
| 2 | A | B | C | D |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Good luck!

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

1. Consider a computer that has a motherboard with 2 PATA sockets and no expansion slots. How many PATA drives are you able to connect to this motherboard?

- a. 2.
- b. 3.
- c. 4.
- d. Any number.

2. By executing the Device Manager, a list of devices is presented. A device with a yellow question mark next to it means that:

- a. the device is working properly but with an old driver.
- b. Device is not known.
- c. Device is not installed.
- d. Device is disabled.

3. Which of the following programs provides to the user a higher level interface to manipulate which applications run on startup?

- a. DxDiag.
- b. Regedit.
- c. Msconfig.
- d. Msinfo32.

4. Which of the following peer-to-peer disadvantages is not true?

- a. There is no centralized network administration.
- b. There is no centralized security.
- c. Peers can only transmit or receive information, but not both at the same time.
- d. The network becomes more complex and difficult to manage as the number of computers on the networks increases.

5. Which service allows us to translate private IP address into public IP addresses in a router?

- a. DHCP.
- b. NAT.
- c. DNS.
- d. DoS.

6. A group of computers and electronic devices with a common set of rules and procedures administered as a unit is known as...

- a. Network.
- b. **Domain.**
- c. Workgroup.
- d. LAN.

7. What IP class is specially used for multicasting?

- a. Class C.
- b. Class E.
- c. Class A.
- d. **Class D.**

8. Which wireless IEEE standard provides a theoretical maximum speed of 54 Mbps, operates in the 2.4 GHz spectrum and has a maximum range of 90 m?

- a. 802.11a
- b. 802.11b
- c. **802.11g**
- d. 802.11n

9. TCP/IP is the protocol suite that is used to control all of the communications on the Internet. TCP/IP may also be vulnerable to attackers; there are different types of attacks. Which attack has this description "Gains access to resources on devices by pretending to be a trusted computer?"

- a. SYN flood
- b. DDoS
- c. **Spoofing**
- d. Man-in-the-middle

10. Which security standard was the first generation security standard for wireless Encryption and authentication technologies?

- a. Lightweight Extensible authentication protocol (LEAP)
- b. **Wired Equivalent Privacy (WEP)**
- c. Wi-Fi protected access2(WPA2)
- d. Wi-Fi protected access (WPA)

11. What is a logical topology?

- a. Another name for routing table.
- b. A map over where the computers are located.
- c. Another name for Ethernet.
- d. **A map over how computers are connected.**

12. There are different Email protocols and each one has different advantages. What advantage does the SMTP has over the others?

- a. Supports intermittent connections
- b. Stores mail on the server
- c. Allows simultaneous access by multiple clients
- d. Delivers email from one server to another

13. Which of the following commands displays all of the TCP/IP network values of a computer?

- a. cmd.
- b. ping.
- c. ipconfig.
- d. tracert.

14. Which CPU technology is used on laptops to modify the frequency of a CPU to conserve power and reduce heat?

- a. Hyper-Threading.
- b. CPU throttling.
- c. Turbo Boost.
- d. Hyper transport.

15. What could occur if the POST fails?

- a. BSOD
- b. Restart
- c. Beeps
- d. Shutdown

16. What type of RAID is related to "mirroring"?

- a. RAID-0
- b. RAID-1
- c. RAID-4
- d. RAID-5

17. Order the interfaces according to age. Start with the oldest.

- a. PCI, PCI Express, ISA, AGP
- b. ISA, PCI, AGP, PCI Express
- c. AGP, ISA, PCI, PCI Express
- d. PCI Express, PCI, ISA, AGP

18. Which alternative shows the value decimal 8 in binary?

- a. 0011
- b. 1111
- c. 1000
- d. 0110

19. Which of the following is connected to the north bridge?

- a. NIC
- b. Sound card
- c. HDD
- d. CPU

20. What drawback does FAT32 have?

- a. Mac OS X cannot write to FAT32.
- b. FAT32 has a drive limit of 500GB.
- c. FAT32 has a file limit of 4G
- d. Windows 7 cannot write to FAT32.

21. Which question is open ended?

- a. Can you recreate the problem?
- b. Have anyone else used your computer recently?
- c. What software have you recently installed?
- d. Have you changed your password recently?

22. RAM is considered volatile. This means that:

- a. When the computer shuts down, the content of the RAM is lost.
- b. When the computer shuts down, the RAM stores temporary data.
- c. The RAM can be shared with the graphics card.
- d. The RAM is used to improve HDD performance.

23. What energy saving state saves volatile data to the HDD?

- a. Standby
- b. Sleep
- c. Hybrid sleep
- d. Hibernate

24. What command is used to create a new folder?

- a. dir
- b. cd
- c. md
- d. rd

25. What is the standard file system for Windows 7?

- a. NTFS
- b. FAT32
- c. EXT4
- d. HFS+

26. Failsafe startup mode means that:

a. The operating system starts with only the most basic drivers enabled.

b. The computer is prevented from crashing.

c. When an error occurs, it will be handled safely.

d. Fails that occur will be stored in a separate log (the safe file).

27. What protocol is used by ping?

a. ftp

b. http

c. smtp

d. icmp

28. What command is used to check the Internet address of the computer?

a. Ipconfig

b. Ping

c. Regedit

d. Msconfig

29. What is VoIP?

a. An IP assigned in a LAN.

b. A method to perform telephony over the Internet.

c. A tunnel that encrypts your Internet traffic.

d. An EULA.

30. What is incorrect about DoS?

a. A DoS attack sends large amounts of data to a destination to prevent other activity.

b. A DoS attack makes it possible to control that destination without the need of a trojan or virus infection.

c. A DDoS attack is multiple DoS attacks deployed from multiple sources.

d. E-mail bombing is one type of DoS attack.

31. Which alternative is considered social engineering?

a. Phishing

b. SYN flood

c. Adware

d. Spoofing

32. What protocol replaced WEP?

- a. WPA
- b. LAEP
- c. LEAP
- d. WTLS

33. How many active partitions can there be on a HDD?

- a. 1
- b. 2
- c. 3
- d. 4

34. What port is normally used by the http server?

- a. 21
- b. 32
- c. 53
- d. 80

35. What does BSOD mean?

- a. Blue Screen of Death
- b. Boot Screen of Damage
- c. Boot Support Ongoing Damage
- d. Blue Screen of Damage

36. Which of the following protocols is outdated and considered insecure?

- a. WEP
- b. WPA
- c. LEAP
- d. WTLS

37. What ACPI level states that the computer is fully on?

- a. S0
- b. S1
- c. S2
- d. S3

38. 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.

39. What is a FRU?

- a. Free Reigning Usability
- b. **Field Replacable Unit**

- c. Failed Removable Unit
- d. Fire Reduction Utility

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

- a. no signal.
- b. broken lcd panel.

- c. **damaged back light.**
- d. no power.

PART 2 – GRADE 4 – 75%

DEL 2 – BETYG 4 – 75%

1. Match the following:
Matcha följande:

A4. ESD
B3. EMI
C1. UPS
D2. SPS

1. Backup power
2. Standby power
3. Disturbance (störningar) from electromagnetism
4. Disturbance from electric charge (laddning)

2. Order the following connectors in increasing order of pins. If there are different variants, assume the largest type.

Ordna följande kontakter i ökande antal pinnar. Om det finns olika varianter, anta den största typen.

A3. SATA
B1. MOLEX
C2. AUX
D4. ATX

3. Order the following in increasing size of bytes:

Ordna följande i ökande byte-storlek:

A3. Track
B1. Sector.
C2. Cluster.
D4. Cylinder.

4. Match the 4 OSI layers to corresponding 3 TCP/IP layers.

Matcha de 4 OSI-lagren till motsvarande 3 TCP/IP-lager.

C1. Physical.
A2. Network.
C3. Data link.
B4. Transport.

- A. Internet.
- B. Transport.
- C. Network access.

5. Match the following attacks:

Matcha följande attacker:

- A. Spoofing.
- B. Dos.
- C. DDos
- D. Man in the middle

- D1. Inserting false information in the traffic flow.
- C2. Use zombies to increase load and spread source.
- A3. Pretending to be a trusted node.
- B4. E.g., pulling the power plug for a switch.

- 1. För in falsk information i trafikflödet.
- 2. Använda zombies för att öka lasten och sprida källan.
- 3. Låtsas vara en betrodd nod.
- 4. Tex., dra ut strökabeln ur switchen.

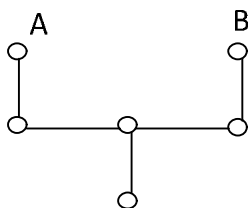
6. You are given 7 switches and an infinite supply of cables. Order the following architectures according to increasing worst case distance between two switches (starting with the architecture where the switches are closest to each other in the worst case.). distance = number of links: (hint: draw, count)

Du får 7 switchar och en oändlig tillgång på kabel. Ordna följande arkitekturer i ökande värsta-fall avstånd mellan två switchar (böja med arkitekturen där switcharna i värsta fall hamnar närmast varandra). avstånd = antal länkar: (tips: rita, räkna)

- A3. Ring. (distance =3)
- B2. Star. (distance =2)
- C4. Start of star. (distance =4)
- D1. Mesh. (distance =1)

Example: The following made up network has a worst case distance of 4, between node A and B.

Exempel: Följande påhittade nätverk har ett värsta avstånd på 4, mellan nod A och B.



7. Order the following methods according to increasing storage space required:

Ordna följande metoder i ökande behov av lagringsutrymme:

- A1. Incremental backup.
- B2. Differential backup.
- C3. Full backup

8. Order the following ESD-related events according to increasing charge:

Ordna följande ESD-relaterade händelser i ökande laddning:

- A. A discharge is felt.
- B. A flash is seen.
- C. A sound is heard.
- D. Nothing is observed.

- A2. En urladdning känns.
- B4. En blixtnsyn.
- C3. Ett ljud hörs.
- D1. Ingenting observeras.

9. Match the following:

Matcha följande:

- A2. TCP/IP
- B4. Telnet
- C3. SMTP
- D1. Netbeui/ Netbios

- 1. Workgroup network.
- 2. Internet connection.
- 3. Sending email.
- 4. Text based remote connection.

- 1. Nätverk för arbetsgrupper.
- 2. Internetuppkoppling.
- 3. Sända email.
- 4. Textbaserad fjärruppkoppling.

10. Order the following according to increasing maximum bandwidth:

- A3. USB 2.0
- B2. IEEE 1284
- C1. RS-232
- D4. IEEE 1394 b

PART 3 – GRADE 5

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 one A4, 1120 characters, white space included, one character in each square. Write a sketch first, then transcribe it to the answer sheet.

1. The benefits and drawbacks of pipelining.
2. Computer systems maintenance.
3. Network architectures.
4. Authentication and access.
5. The benefits and drawbacks of peer-to-peer.
6. Solid state disks.
7. The installation process.
8. Computer systems security.
9. Operating systems configuration (hardening).
10. Portable computers.

Del 3 – Betyg 5

KRAVET FÖR ATT FÅ BETYG 5 ÄR ATT VISA EN DJUP FÖRSTÅELSE FÖR ÄMNET OCH KUNNA DISKUTERA OCH ARGUMENTERA RUNT ÄMNET MED HJÄLP AV KORREKT TERMINOLOGI OCH MED KORREKTA BEDÖMNINGAR. MED ANDRA ORD: ATT UTTRYCKA SIG KORREKT RÄCKER INTE FÖR ATT FÅ GODKÄNT I DENNA DEL – DU MÅSTE OCKSÅ ÖVERTYGA OM ATT DU BESITTER EN DJUP FÖRSTÅELSE AV ÄMNET.

Instruktioner: Välj ett av ämnena nedan och skriv ett relevant utlåtande på max en A4, 1120 tecken, mellanslag inräknat, ett tecken per ruta. Skriv först ett utkast, för sedan över detta till ditt svarsformulär.

1. Fördelar och nackdelar med pipelining.
2. Underhåll av datorsystem.
3. Nätverksarkitekturer.
4. Autentisering och access.
5. Fördelar och nackdelar med peer-to-peer.
6. Solid state disks.
7. Installationsprocessen.
8. Säkerhet i datorsystem.
9. Konfigurering av operativsystem (härdning).
10. Portabla datorer.