بالتوفيييق يارب

فاينل العمرو 451

2023/12/28

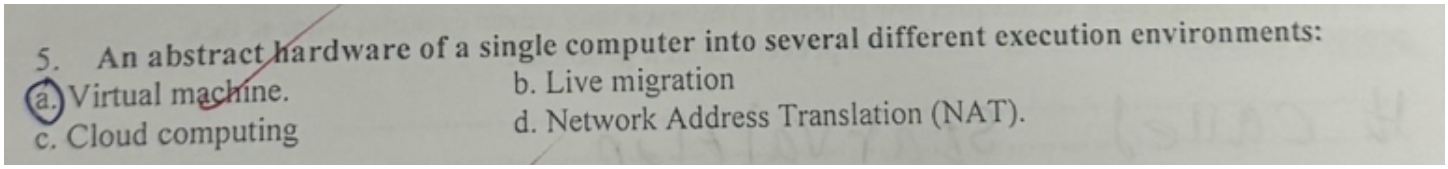
4006

2023

فاينل العمرو 451

السؤال الاول 5 اختيارات [5 درجات] :

1-


5. An abstract hardware of a single computer into several different execution environments:
a. Virtual machine. b. Live migration
c. Cloud computing d. Network Address Translation (NAT).

2- Which of the following has different size ? :

A. Program pages

B. Program segment ✅

C. Program frames

D. All answers

3- Intruder sits in data flow, masquerading as sender to receiver and vice versa:

A. Masquerading

B. Breach of integrity

C. Man-in-the-middle attack ✅

D. Session hijacking

4-Unauthorized modification of data leads to :

A. Breach of confidentiality

B. Breach of integrity✅

C. Breach of availability

D. Denial of service

5- نسيته جايب من برا النماذج

السؤال الثاني 5 صح وخطا [5 درجات] :

1- Each OS has its own I/O subsystem structures and driver frameworks : true

2- Binary semaphore contains an integer value that can range over an unrestricted domain : false

3- a port scanning is a Program that initiates a security incident under certain circumstances : false

4- Block and stack methods limit the number or length of parameters being passed : false

5- نسيته

السؤال الثالث :

A. [5 marks]

جاب نفس السؤال ذا لكن حدد لك الاولويه لكل process والناتج = 13.25

(3+24+26)/4 = 13.25

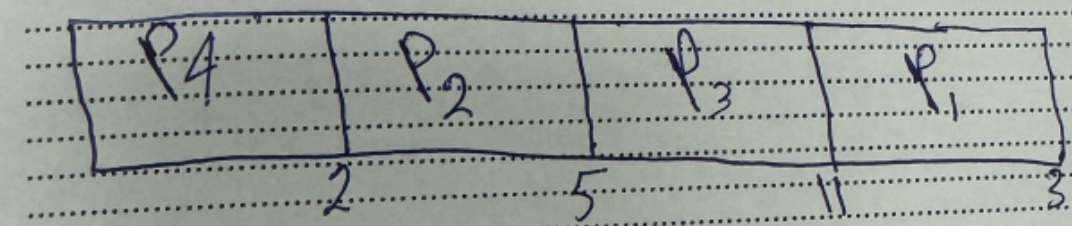
Question 5, =6 Marks

Consider the following table:

Process	Duration (Burst time)
P1	21 4
P2	3 2
P3	6 3
P4	2 1

6

Assume that all processes arrived at time 0, use the Non Pre-emptive Shortest Job First scheduling technique, draw the Gantt chart for the processes, and calculate the average waiting time.



Avg = 2 + 5 + 11 = 18 = 4.5
4 4 5

B. [6 marks]

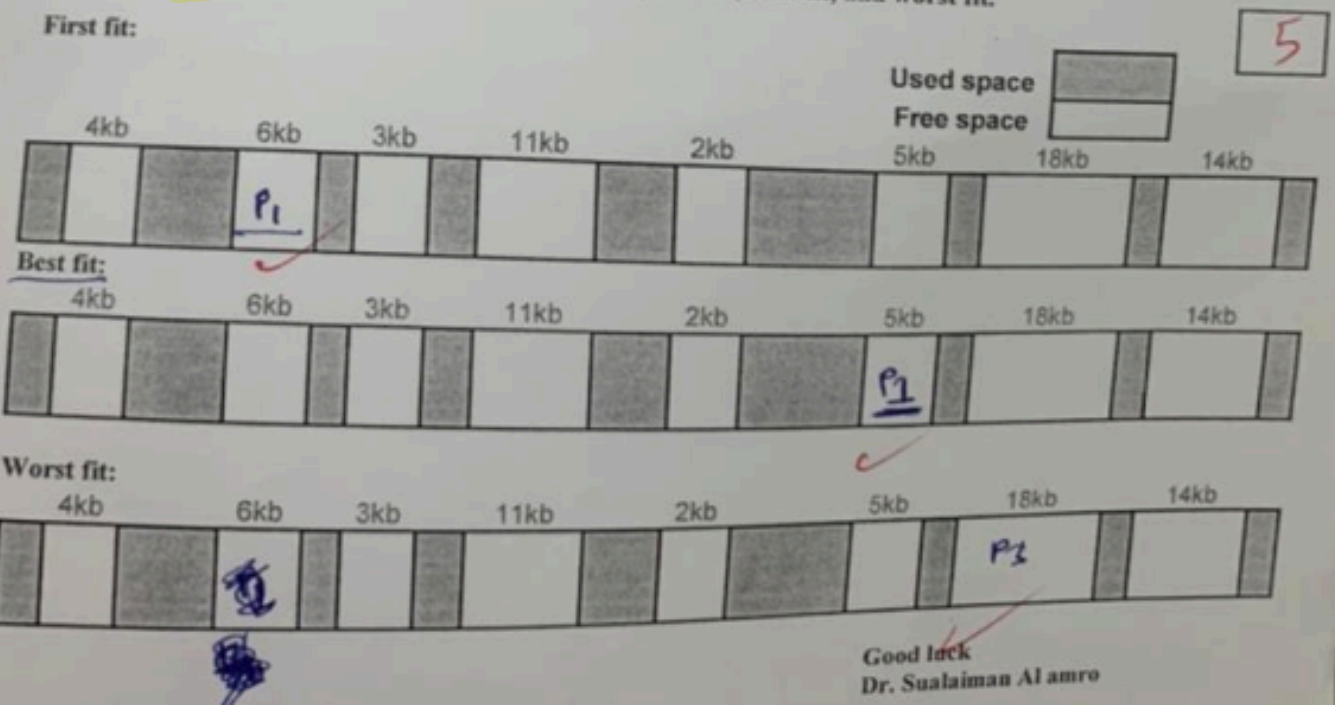
جابه نسخ لصق

Question 4, =5 Marks

Apply the Dynamic Storage-Allocation method to allocate a suitable hole for the following process P1 of size 5 Kb. Determine the location of P1 using first fit, Best fit, and worst fit.

5

First fit:



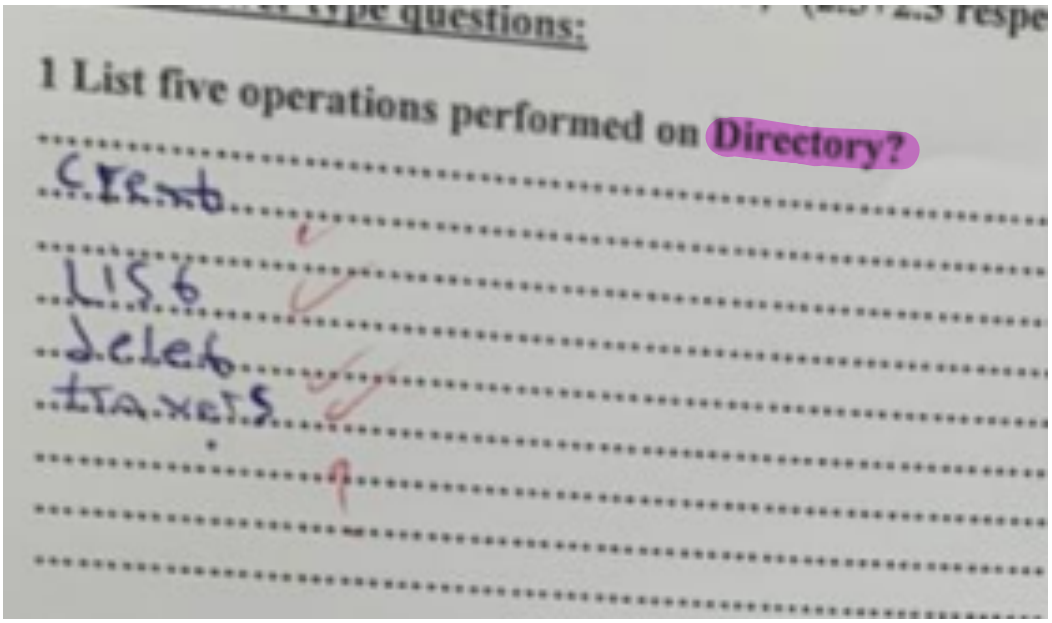
Best fit:

Worst fit:

Good luck
Dr. Sualaiman Al amro

السؤال الرابع :

A.



1 List five operations performed on Directory?

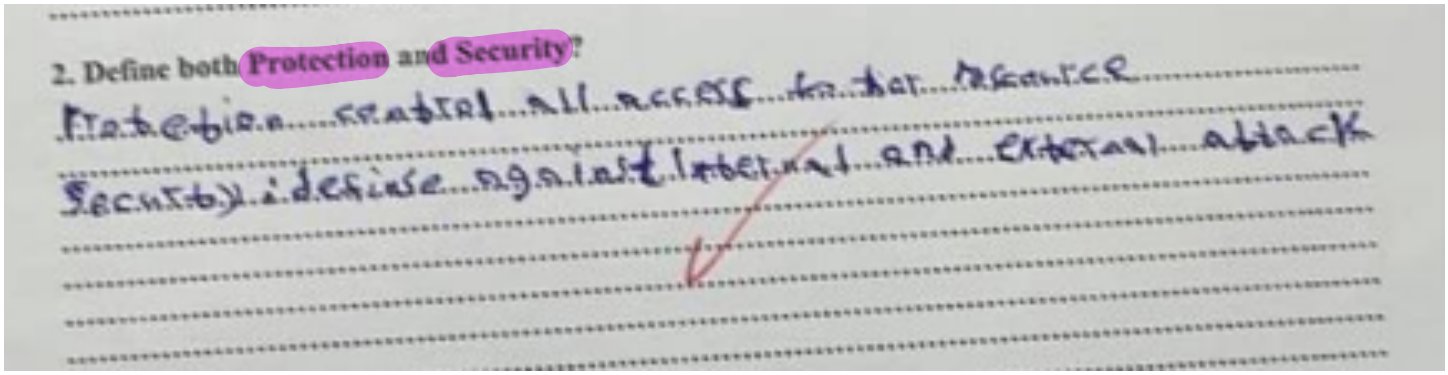
Creat

List

Delet

Traverse

B.


2. Define both Protection and Security?

Protection ... central all access ... for the resource

Security ... defense ... against internal and external attack

C. What is the Security Violation Categories? :

1- Breach of confidentiality

2- Breach of integrity

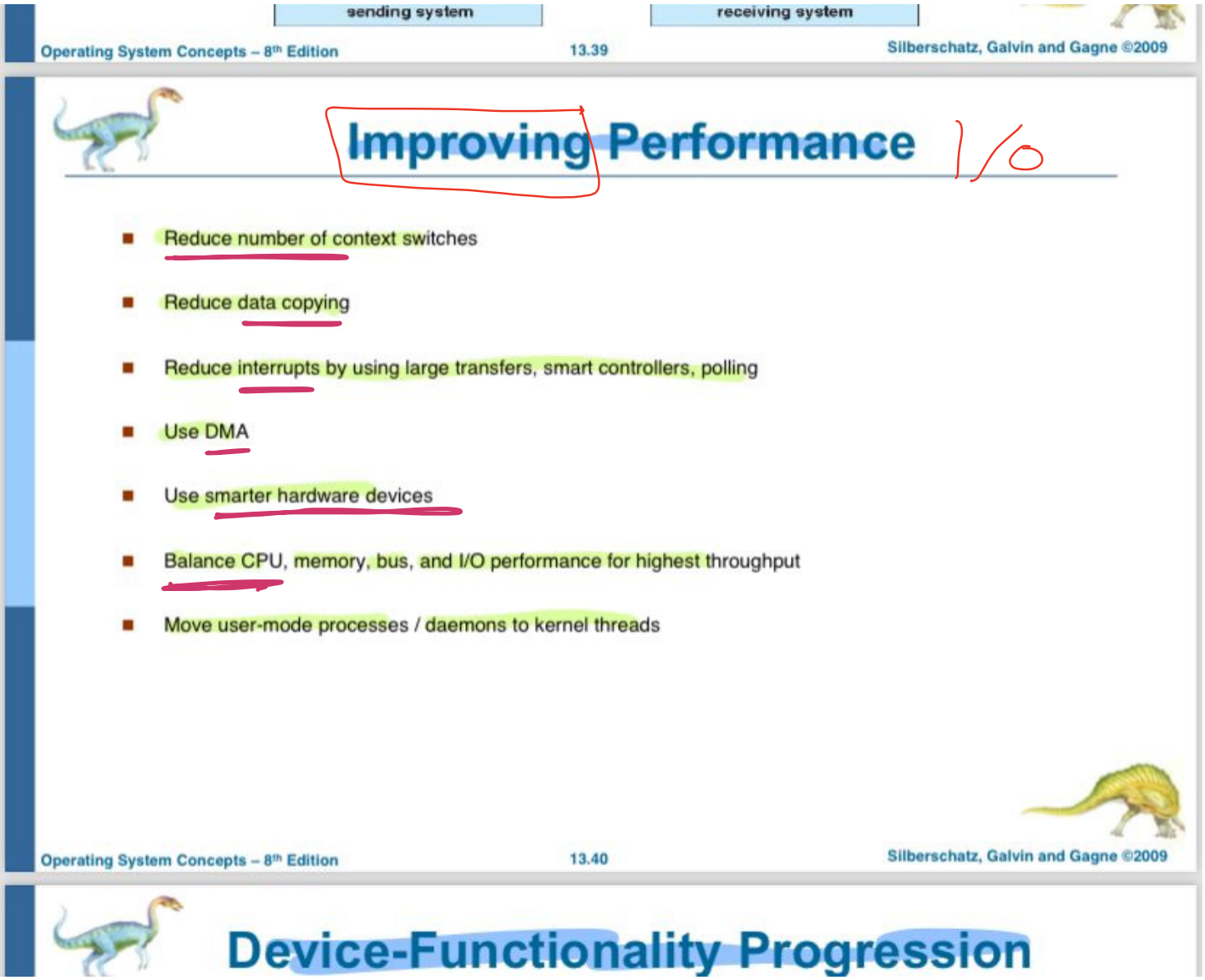
3- Breach of availability

4- Theft of service

5- Denial of service (DOS)

السؤال الخامس :

A. ways to improve input/output system ?



كان يتكلم عن البرفلج بس نسيت وش نص السؤال لكن كان من هذا السلايد .B



Principles of Protection

- Guiding principle – **principle of least privilege**
  - Programs, users and systems should be given just enough **privileges** to perform their tasks
  - Limits damage if entity has a bug, gets abused
  - Can be static (during life of system, during life of process)
  - Or dynamic (changed by process as needed) – **domain switching**, **privilege escalation**
  - "Need to know" a similar concept regarding access to data
- Must consider "grain" aspect
  - Rough-grained privilege management easier, simpler, but least privilege now done in large chunks
    - For example, traditional Unix processes either have abilities of the associated user, or of root
  - Fine-grained management more complex, more overhead, but more protective
    - File ACL lists, RBAC
- Domain can be user, process, procedure



C. What is the diff between TYPE 1 and TYPE 2 in vm system ?

Type 1: Runs directly on hardware (bare-metal) and is used for servers (e.g., VMware ESX).

Type 2: Runs as an application on an existing OS and is used for PCs (e.g., VirtualBox).



Implementation of VMMs

- Vary greatly, with options including:
  - **Type 0 hypervisors** - Hardware-based solutions that provide support for virtual machine creation and management via firmware
    - IBM LPARs and Oracle LDOMs are examples
  - **Type 1 hypervisors** - Operating-system-like software built to provide virtualization
    - Including VMware ESX, Joyent SmartOS, and Citrix XenServer
  - **Type 1 hypervisors** – Also includes general-purpose operating systems that provide standard functions as well as VMM functions
    - Including Microsoft Windows Server with HyperV and RedHat Linux with KVM
  - **Type 2 hypervisors** - Applications that run on standard operating systems but provide VMM features to guest operating systems
    - Includeing VMware Workstation and Fusion, Parallels Desktop, and Oracle VirtualBox



D. discuss Distributed file system (DFS) :

Distributed File System (DFS):

A DFS lets multiple users share files and storage across different remote devices.



Distributed File System

- **Distributed file system (DFS)** – a distributed implementation of the classical time-sharing model of a file system, where multiple users share files and storage resources
- A DFS manages set of dispersed storage devices
- Overall storage space managed by a DFS is composed of different, remotely located, smaller storage spaces
- There is usually a correspondence between constituent storage spaces and sets of files
- Challenges include:
  - Naming and Transparency
  - Remote File Access



و بس هذي كل الاساله اللي جت بالاختبار (ناقص سؤال واحد اختيارات و سؤال واحد صح وخطأ)

بالتوفيق للجميع ولاتنسونن من دعاكم