Part1. Choose the correct answer (5 pts: 0.5 each).

LO2.1: 1) You are responsible for performing .... on software; you need to verify that the system components work together:

a) Function testing

c) Acceptance testing

b) Integration testing

d) Installation testing

LO2.1: 2) Assume there is a process A is trying to delete an element of an array X while another process B is trying to read the same element; this is an example of:

a) Race condition

c) Time-of-check to time-of-use

b) Incomplete mediation

d) Incomplete synchronization

LO2.2: 3) VM monitor is a .... :

a) Software that implements a VM

c) Software that implements a Sandbox

b) Software that isolates different processes

d) Method of separation

LO2.2: 4) .... is the part of OS that performs the lowest-level functions:

a) Rootkit

c) Security kernel

b) Kernal

d) Trusted computing base

LO2.3: 5) DBMS assures the element integrity by which of the following technique:

a) Physical hardware

b) Commit flag

c) Regular backups

d) Field check

LO2.3: 6) DBMS to maintain data consistency, it .... :

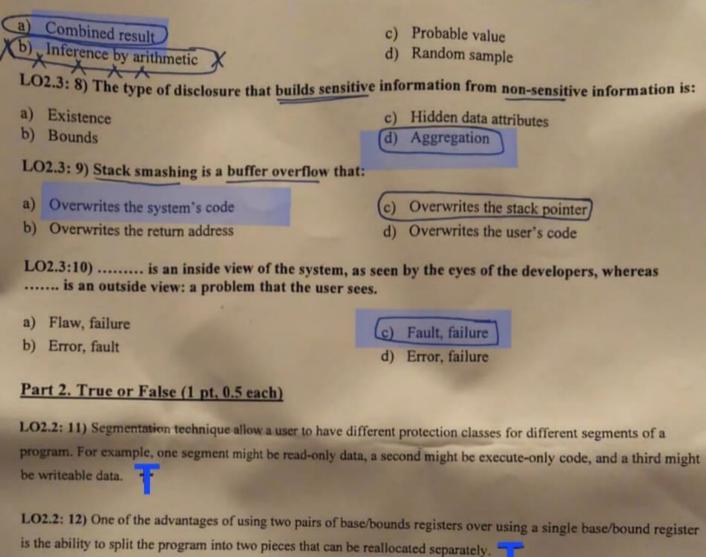a) Treats writes as an Atomic operation, and lock reading

c) Implements a fine strict access control

b) Authenticates every user and accesses

d) Assures the DB runs for a long period without failing

LO2.3: 7) The suppression technique that uses a <u>math function</u> to suppress the <u>results</u> of a DB query is:

a) ~~Combined result~~

b) ~~Inference by arithmetic~~

c) Probable value

d) Random sample

LO2.3: 8) The type of disclosure that <u>builds sensitive</u> information from <u>non-sensitive</u> information is:

a) Existence

b) Bounds

c) Hidden data attributes

d) Aggregation

LO2.3: 9) Stack smashing is a buffer overflow that:

a) Overwrites the system's code

b) Overwrites the return address

c) Overwrites the stack pointer

d) Overwrites the user's code

LO2.3:10) .... is an inside view of the system, as seen by the eyes of the developers, whereas .... is an outside view: a problem that the user sees.

a) Flaw, failure

b) Error, fault

c) Fault, failure

d) Error, failure

Part 2. True or False (1 pt, 0.5 each)

LO2.2: 11) Segmentation technique allow a user to have different protection classes for different segments of a program. For example, one segment might be read-only data, a second might be execute-only code, and a third might be writeable data. **T**

LO2.2: 12) One of the advantages of using two pairs of base/bounds registers over using a single base/bound register is the ability to split the program into two pieces that can be reallocated separately. **T**

Part3. Matching Questions (1 pt.)

LO2.2: 13) Match the hardware protection technique with an appropriate description:

(e) Paged segmentation

(d) Fixed fence

(b) Tagged architecture

a) Protects against all program errors

b) Solves the external and internal fragmentations

c) Adds an extra bit that indicates the access rights

d) A predefined memory address ✓

e) Suffers from internal fragmentation

paged (b)

Fixed (d)

Tagged (c)

LO2.1: 14) Suppose you are writing a malicious code and need to attach it to a host program. Where will you place your code inside the host program?

Give the appropriate attachment place based on the following cases:

a) You know the exact structure of the host program and understand its code.

b) You don't know the structure of the host program and you don't care about hiding your malicious code.

a)Integrated viruses
b)Appended viruses

LO2.1: 15) On the login page of a broken bank website, it asks customers to enter their user_ID and password.

The SELECT statement that is performed in this login page is as the following:

```
SELECT AccountNumber, Balance FROM Accounts WHERE user_id = "" and
password=""
```

a-What should you enter in this login page to execute the query without entering valid credentials?
' or '1=1'

b-Name this attack?   a) 'ID' or '1' = '1'

b-SQL Injection

LO2.1: 16) Suppose you install the software `PrivateEmail` to create and send encrypted emails. Hence, you realized that this software saves copies of original emails.

Describe this software?   Trojan horse

لانه له وظيفه اضافية ضارة وغير
موثوقه

LO2.1: 17) What type of disclosure in each of the following scenarios:

a. Alice retrieved the honor list in the school, and because Racheal is not on this list. Alice deduced that Racheal's GPA is below 4.5.

a) negative **result** ✓

negative data ✓

ابحث عن معلومة عن طريق نفي معلومة

b. Alice is not allowed to send a clear query to know if Racheal got a scholarship or not. Thus, Alice now uses two queries to narrow down the possibility. As a result, Alice only knows the probability of Racheal is getting the scholarship.

Bound data (Range)

b)Probable value

LO2.2: 18) Suppose an OS before any writing actions, clear the memory space, then do the writing action.

a. Name this security characteristic? a) Object reuse control

b. Describe this system in a word. What can you call it? b) نظام أمن ومعقم sanitization

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LO2.2: 19) What is the condition required to correctly implement these suppression techniques:

a. Random sample

a)random and lage enugh to be valid

b. Swapping

b)(statistic value should be still

LO2.3: 20) The two-phase update is a solution for a DB failure during an update.
How do the DBMS will recover from a failure that occurs in the second phase of this technique?

Phase 1

(Intent) - اول حاجة أناكد (DBMS) رح يجح المعلومات من غير التفاصيل وأتأكد من صحتها
وانؤمانيها خلال داموي لها وواف تهانيا رح انشكل لمرحلة الثانيه

Phase 2 المرحلة الثانية اكتب المعلومات بشكل نخلي ودوحصل فشل اسوي (rewrite)

$\frac{1}{2}$

Repeat the 2nd phase

Repeat the second phase

LO2.3: 21) Answer the following:

a-What do virus scanners look for to detect viruses? a)signature

b-What are the hardest type of virus to detect by virus scanners?

b)polymorphic virus