Q1 Academic Honesty
0 Points

It is a violation of the Academic Integrity Code to look at any reference material other than your textbook and lecture notes, or to give inappropriate help to someone or to receive unauthorized aid by someone in person or electronically via messaging apps such as WhatsApp. Academic Integrity is expected of all students of Hacettepe University at all times, whether in the presence or absence of members of the faculty. Do NOT sign nor take this exam if you do not agree with the honor code.

Understanding this, I declare I shall not give, use or receive unauthorized aid in this examination.

Signature (Specify your name and surname as your signature)

Yildirim Bayazıt AKYUREK

Q2
4 Points

Semi-structured data are characterized by complex data, whose schema is fixed.

O True

⊙ False

Q3
11 Points

The relational data model has been extended in several ways to support the storage and data exchange needs of modern applications. *Choose the ones that apply to get any credit.*

- [ ] Some database systems allow each tuple to potentially have a different set of attributes.

- [ ] Many data representations allow attributes to non-atomic values.

- [x] Many data representations allow attributes to be structured, directly modeling composite attributes in the E-R model.

- [x] Some database systems provide flexibility in the set of attributes that a record contains as well as the types of these attributes.

Q4
4 Points

The Resource Description Framework (RDF) is a data representation standard based on the entity-relationship model.
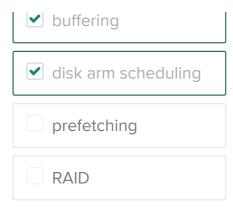
- ⦿ True
- ◯ False

Q5
4 Points

Building data management systems that can scale to large volume/velocity of data requires parallel/distributed storage and processing of data.

⦿ T

◉ True

○ False

Q6
4 Points

Key-value storage systems allow records to be stored and retrieved based on a key and may additionally provide limited query facilities. These systems are not fullfledged database systems, and they are sometimes called NoSQL systems.

◉ True

○ False

Q7
4 Points

Disks are vulnerable to failure, which could result in loss of data stored on the disk. We **cannot** reduce the likelihood of irretrievable data loss by retaining multiple copies of data.

○ True

◉ False

Q8
10 Points

Several techniques have been developed to optimize disk block access. *Choose the ones that apply to get any credit.*

☐ read ahead

- ☑ buffering

- ☑ disk arm scheduling

- ☐ prefetching

- ☐ RAID

Q9
4 Points

MTTF of a given single disk is smaller than the MTTF for a given array of the same disks.

- ○ True
- ⊙ False

Q10
4 Points

In RAID 5, only 5 disks can be used.

- ○ True
- ⊙ False

Q11
4 Points

Row-oriented storage systems perform better compared to column-oriented storage systems, especially in transaction processing.

- ○ T

⦿ True

○ False

Q12
4 Points

XML tags must be chosen carefully so that the content can be understood by humans easily.

⦿ True

○ False

Q13
4 Points

Recall is used to indicate how much of all relevant instances is retrieved.

⦿ True

○ False

Q14
4 Points

IDF is used to show how commonly a word is used accross documents.

⦿ True

○ False

Q15
4 Points

In Object Relational Databases, reference types are used to allow system generated keys as references.

◉ True

○ False

Q16
4 Points

Failure of a component may cause the failure of a poorly designed distributed system.

◉ True

○ False

Q17
4 Points

If the name node does not respond due to a network failure even though the node itself is still working, new copies of data blocks on that node are copied in the cluster automatically.

◉ True

○ False

Q18
4 Points

In HDFS, every file block has three copies by default, which are

scattered among different racks.

⦿ True

◯ False

Q19
4 Points

You need at least two disk drives to implement RAID 0.

⦿ True

◯ False

Q20
5 Points

Which one is the fastest and most expensive form of storage, which is relatively small?

⦿ Cache

◯ Main memory

◯ Flash memory

◯ Magnetic disk

◯ Optical disk

Q21
5 Points

What is the meantime to failure (MTTF) of some disk in an array of 100 disks, if the MTTF of a single disk is 100,000 hours?

⦿ 1000

○ 100.000

○ 100

○ 10000

○ 10.000.000

Q22

5 Points

There is a tradeoff between reliability and __

○ redundancy

○ aging

○ scheduling

◉ performance

○ disks

Quiz 4

● **GRADED**

STUDENT

YILDIRIM BAYAZIT AKYÜREK

TOTAL POINTS

58 / 100 pts

QUESTION 1

Academic Honesty   0 / 0 pts

Academic Honesty   **0** / 0 pts

QUESTION 2
(no title)   **4** / 4 pts

QUESTION 3
(no title)   **0** / 11 pts

QUESTION 4
(no title)   **4** / 4 pts

QUESTION 5
(no title)   **4** / 4 pts

QUESTION 6
(no title)   **4** / 4 pts

QUESTION 7
(no title)   **4** / 4 pts

QUESTION 8
(no title)   **0** / 10 pts

QUESTION 9
(no title)   **4** / 4 pts

QUESTION 10
(no title)   **4** / 4 pts

QUESTION 11
(no title)   **4** / 4 pts

QUESTION 12
(no title)   **0** / 4 pts

QUESTION 13
(no title)   **4** / 4 pts

QUESTION 14
(no title)   **4** / 4 pts

QUESTION 15
(no title)   **0** / 4 pts

QUESTION 16
(no title)

4 / 4 pts

QUESTION 17
(no title)

0 / 4 pts

QUESTION 18
(no title)

0 / 4 pts

QUESTION 19
(no title)

4 / 4 pts

QUESTION 20
(no title)

5 / 5 pts

QUESTION 21
(no title)

5 / 5 pts

QUESTION 22
(no title)

0 / 5 pts