

Exam Questions

3.1 Compression, Encryption & Hashing

Lossy & Lossless Compression / Run Length Encoding & Dictionary Coding /
Symmetric vs Asymmetric Encryption / Hashing

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Total Marks

/18

- 1 All videos that are streamed are compressed. Customers have the option to choose from watching the videos with lossy compression or lossless compression.

Explain how this choice will impact the customer.

(5 marks)

- 2 A hotel stores data about rooms, customers and bookings in a database. Each customer can book multiple rooms and each room can be booked multiple times.

Describe two different ways that hashing could be used in this database.

(4 marks)

- 3 A team of programmers create a robot that will be used in a factory. The robot will be able to do the work of multiple humans.

The programmers discuss whether to write the instructions for the robot in assembly language or a high-level language.

The robot stores data internally and also communicates with other robots and users via a wireless network which is password protected. All data for these tasks is secured using either encryption or hashing.

Compare the robot's use of encryption and hashing for storing and communicating data

You should include the following in your answer:

- the different types of encryption that could be used and how this would secure data
- how hashing could be used to secure data and which data would be suitable
- why encryption and hashing are used by the robot for stored data and communications.

(9 marks)