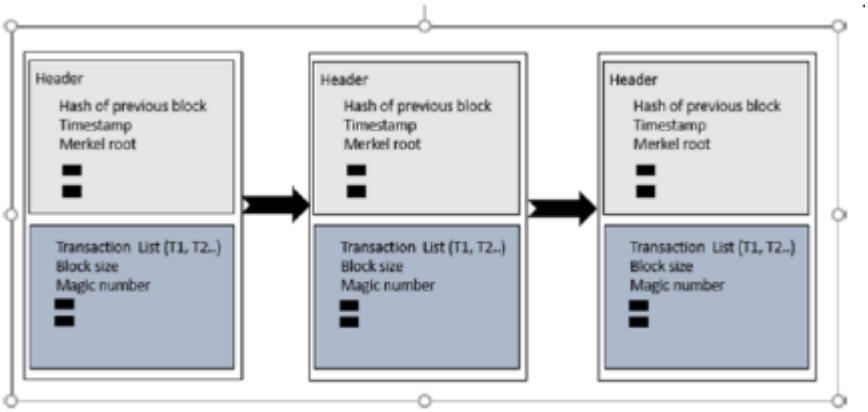
1) Explain the block structure in Blockchain?

Ans: • A block is a unit containing a set of confirmed transactions. If Blockchain is a ledger, think of a block as a page or book. Each block, as shown in Figure, is composed of the header, which contains information like the previous block hash reference, the timestamp on which block is generated, and so on, along with the body. The body of the block contains a list of the accepted transaction. The header is hashed cryptographically to generate a new block. • Every transaction is encrypted (hashed) with a public-private key and every header is hashed to generate a new block. Due to this implementation, every transaction has a record associated with the new block. The header also contains the address of the previous block, thus the chain becomes incorruptible. As more and more transactions happen, the Blockchain transaction appends only and creates a chronologically growing timestamp database of transactional data, as shown in Figure 7-14. It thereby creates a chain block, hence the name Blockchain



2) Write a note on benefits of Blockchain?

Ans: Blockchain brings numerous benefits by storing and organizing the data in a novice way. Various industry verticals have been researching and exploring unique ways to use Blockchain in an effective manner. As mentioned earlier in the chapter, Blockchain can organize data for anything that has value. You can also use Blockchain in all the scenarios where it requires you to trust someone. Here are some of the benefits of using Blockchain: • Improves the efficiency of the system. • All the changes on the public Blockchain can be viewed publicly by all parties, thereby creating transparent systems. • Ensures transactions are immutable in nature, which means transactions cannot be altered or deleted. In order to modify existing transactions, the new transaction needs to be proposed. • Blockchain transaction is processed 24/7 and can also help reduce transaction time to minutes. • Provides a secured way to avoid cybersecurity and fraud risk by using trust secured algorithms. • By eliminating third-party intermediaries and overhead cost, Blockchain has great potential to reduce transaction feeds. • Provides alternate options of trust using centralized systems. • Provides ways for identification and verification.

c) What is testing with a Pass-Through Query in Azure?

Ans. Once the data is sampled and ready to be queried, you may stop the simulated device to prevent your IoT Hub from being metered further. Now, modify the query in the editor to update YourInputAlias to the name of your hub input. You may leave YourOutputAlias as is. SELECT * INTO [YourOutputAlias] FROM [your-iothub-input-alias] SELECT * FROMpicks up and displays all rows and columns from the specified table. In the context of Stream Analytics, this is what is called a “pass-through” query. It selects all data from the given input and sends it to the given output. Ideally, you’d specify constraints and filters (e.g., the WHERE clause) to perform analysis and send only those records to an output that match your criteria. Click the Test button. In the absence of a permanent storage output, the pass-through query generates results in a browser. You can match column names in the SA query result with the attribute names in the sample message.