What is Automated Backups ?

* Automated Backups allow you to recover your database to any point in time within a “Retention Period”. The retention period can be between one and 35 days.
* Automated backups will take a full daily snapshot and will also store transaction logs throughout the day. When you do a recovery, AWS will first choose the most recent daily backup, and then apply transaction logs relevant to that day. This allows you to do a point in time recovery down to a second, within the retention period.
* Automated backups are enabled by default. The Backup data is stored in S3 and you get free storage space equal to the size of your database. So if have an RDS instance of 100 Gb, you will get 10 Gb worth of storage.
* Backups are taken within a defined window, storage I/O may be suspended while your data is being backed up and you may experience elevated latency.

What is Snapshots ?

* DB Snapshots are done manually (i.e. they are user initiated). They are stored even after you delete the original RDS instance, unlike automated backups.

What is Multi – AZ ?

* Multi-AZ allows you to have an exact copy of your production database in another Availability Zone. AWS handles the replication for you, So when your production database is written to, this write will automatically be synchronized to the stand by database.
* In the event of planned database maintenance, DB Instance failure , or an Availability Zone failure, Amazon RDS will automatically failover to the standby so that database operations can resume quickly without administrative interference.
* It is not primarily used for improving performance. For performance improvement, you need **Read Replica**.
* Multi-AZ is available for the following database  
  - SQL Server  
  - Oracle  
  - MySQL Server  
  - PostgreSQL  
  - MariaDB

What is Read Replica ?

* Read Replica allow you to have a read-only copy of your production database. This is achieved by using Asynchronous replication from the Primary RDS instance to the read replica. You use read replicas primarily for every read-heavy database workloads.
* Read Replica is available for the following database  
  - MySQL Server  
  - Oracle  
  - Aurora  
  - PostgreSQL  
  - MariaDB

Remember about Read Replica……….

* Used for Scaling.
* Must have automatic backcups turned on in order to deploy a read replica.
* You can have up to 5 read replica copies of any database.
* You can have read replicas of read replicas (but which out for latency).
* Each read replica will have its own DNS end point.
* You can create read replicas of Multi-AZ source database.
* Read Replicas can be promoted to be their own databases. This breaks the replication.
* You can have a read replica in a second region

There are two different types of Backups for RDS:

1 – Automated Backups  
2 – Database Snapshots  
  
Highlight……  
  
Read Replicas -

* Can be Multi-AZ
* Used to increased performance.
* Must have backups turned on.
* Can be in different regions.
* Can be MySQL, PostgreSQL, MariaDB, Oracle, Aurora.
* Can be promoted to master, this will break the Read Replica.

Multi-AZ

* You can force a failure from one AZ to another by rebooting the RDS instance.