1. What is Amazon EC2?
   Amazon EC2(Amazon Elastic Compute cloud)is web service that provides cloud compute capacity to clients.

2. List the main components of AWS EC2.
   The main components include Instance, Images, Elastic block store, Network & Security, Load balancing, Auto scaling, Monitoring, System manager, Region & Availability zone.

3. List key features of Amazon EC2.
   Bare metal instances, optimize compute performance and cost with Amazon EC2 fleet, Pause and resume your instances, GPU compute instances, GPU graphics instances, High I/O instances, Dense HDD storage instances, Optimized CPU configurations and so on.

4. What are Region and Availability Zones in AWS Cloud?
   Amazon EC2 is hosted in multiple locations world-wide. These locations are composed of Regions, Availability Zones and so forth. Each Amazon EC2 Region is designed to be isolated from the other Amazon EC2 Regions. Each Region has multiple, isolated locations known as Availability Zones.

5. Discuss some benefits of Availability Zones.
   Customers could operate production applications and databases more highly available, fault tolerant, and scalable than would be possible from a single data center.

6. What is Amazon Machine Image (AMI)?
   AMI can provide basic and specified configuration for customers to run their instances.

7. What type of relation do Instance and AMI have between them?
   General purpose, Computer optimized, Memory optimized, Accelerated computing, Storage Optimized.

8. What is Key Pair in AWS.
   There are public key and private key which are both security credentials, them are aimed to prove your identity when connecting to an Amazon EC2 instance.

9. What is Instance in AWS?
   An instance is a virtual server in the AWS Cloud.

10. Is the EC2 cloud computing model a SaaS, PaaS, or IaaS. Justify your answer.
    I think EC2 cloud computing model is IaaS since it provides networking, storage, server and virtualization. The customers have to manage Operating System, middleware, runtime, data and application.

Part II: AWS S3

1. What is Amazon S3?
   Amazon S3 is also called Amazon simple storage service and it provides the storage for objects through Amazon's web service interface.

2. What can you do with Amazon S3?
   We are able to store a great variety of data on this service like data lakes, mobile applications, enterprise applications and so on. Moreover, we can manage the data we store on the service and configure its access control to meet our needs.

3. What is bucket in Amazon S3?
   Bucket is a public cloud storage resource available in S3, it is like file folders which has data and its description as well.

4. What is the maximum size of S3 bucket?
   From a minimum of 0 bytes to a maximum of 5 terabytes.

5. What is the maximum number of S3 buckets you can create?
   Each AWS account can create 100 buckets.

6. How to upload a file that is greater than 100 megabytes in Amazon S3?
   Firstly, we can separate the large file into several parts and then Initiate the **multipart upload** and receive an upload id in return. Upload each part accompanied by the upload id and a part number. Finally, Finalize the upload by providing the upload id and the part number.

7. How is Amazon S3 data organized?
   Data in S3 can be organized with shared names called prefixes, and our objects are stored across multiple devices spanning a minimum of three Availability Zones.

8. What is S3 Versioning?
   S3 Versioning is an efficient method to make sure that different versions of an object can be stored in same bucket.

9. What are the benefits of using versioning in S3?
   It allows to restore an object to a previous or a specific version of object in a bucker. For example, we can withdraw a deleted or mistakenly overwritten object.

10. What is the cloud computing delivery model for S3? Justify your answer.
    In my view, I think S3 is also IaaS, because the most customers choose AWS can pick up their preferential service, the responsibility of managing is belonged to users.

Part III: Case Study II

1. Which of the three delivery models (IaaS, PaaS, and SaaS) is(are) required?
   The IaaS and PaaS are required to a great extent, this company started to provide basic IT infrastructure and services, so that it requires IaaS to help them manage storage, networking servers and virtualization. Apart from that, this company also running mainframe and low-level platform environments, the PaaS delivery model can efficiently support them in this business area.

2. Discuss the suitability of AWS EC2 for this company.
   Firstly, this company is managing its independently IT services, and it matches the EC2 feature to run their own virtual services on web service. In addition, the feature of geographically distributed different branches can be achieved by EC2's Availability Zones of Regions. The Key Pair in AWS has an ability of improving their aim of providing social security to citizens. EC2 can optimize compute performance and cost with Amazon EC2 fleet which reduce their inefficiencies and inflated costs a lot.

3. Discuss the suitability of AWS S3 for this company.
   Applying S3 can easily store the social security data on the web service and organizationally manage data through service and change data's access control to prevent from public. With buckets, the data also be stored across multiple devices spanning Availability Zones which is suitable for company's three centralized data centres. Moreover, S3 versioning allows to restore an object to a previous or a specific version of object in a bucker. For example, we can withdraw a deleted or mistakenly overwritten object. In this way, the possibility of losing data and uncomplete data will be reduced. S3 is as IaaS delivery model, the company can flexibly customized their products and services for each customer individually.