

Class :-12th(MSBTE) Information Technology Teacher : Mrs. Shilpa Kate

Exercise solution : Lesson No.4.Emergning Technology

Q1. Fill in the blanks.

1. IOT is Referred as **Internet of Things**
2. Smart Home is the application of **Internet of Things** Technology.
3. Amazon is the **web** service provider.

Q2. State True/False.

1. PaaS provides a platform with tools to test, develop and host applications in the same Environment.

ANS:TRUE

2. Cloud computing means to store and access data and programs over the internet.

ANS:TRUE

Q3. Match the following

A

- 1) Smart City
- 2)Amazon Web server
- 3)PaaS
- 4)SaaS

B

- a)Software as a Service
- b) Platform as a Service
- c)Cloud computing
- d) IOT

Ans: 1→d 2→c 3→b 4→a

Q4. Answer in brief.

1. Give some applications of IOT.

Ans: Following are applications of IOT.

Smart lighting - Brightness of light is controlled on the basis of day light.

Smart thermostats - Allows users to schedule, monitor and remotely control home temperatures.

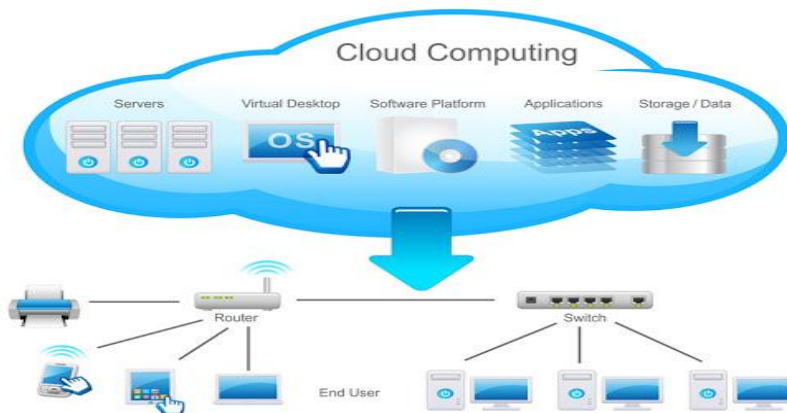
Smart locks and garage-door openers - Password based or facial recognition based doors and locks.

Smart security cameras – Security cameras that can identify known and unknown person and raise alarm, in case of security threat.

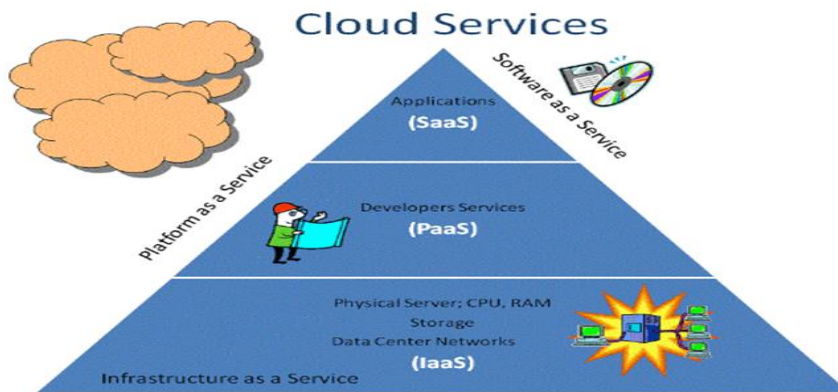
Smart traffic signals – Signal that can monitor vehicles and give responds according to traffic in real time, controls traffic jam problem

2. Explain in detail about cloud computing.

- It provides on-demand network access to a shared pool of computing resources (network, servers, storage, applications) and releases services with service provider interaction.
- Use of remote servers on the internet to store , manage ,process data rather than Local server or on your PC



3.Explain models of cloud computing.



1.Infrastructure as a Service:

- IaaS gives users access to storage, networking, servers and other computing resources via the cloud.
- **Key features :**
 - Instead of purchasing hardware users pay on demand.
 - Enterprises saves the costs of buying and maintaining their own.
 - Infrastructure is scalable depending on processing and storage needs.
 - **Examples :** Amazon web services, Google Compute Engine (GCE)

2.Platform as a Service:

- It offers access to a cloud-based environment in which users can develop, manage and deliver applications.
- **Key features :**
 - PaaS provides a platform with tools to test, develop and host applications in the same environment.
 - Allows organizations to focus on development.
 - Manage security, operating systems, server software and backups.
 - Facilitates collaborative work even if teams work remotely.

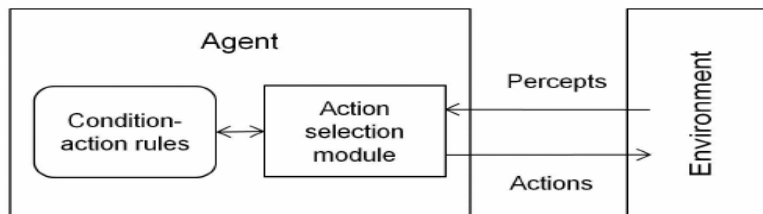
- Ex. Force.com, Google App Engine, Apache Stratos

3. Software as a Service:

- It delivers software and applications through the internet, users accessed these applications through the web.
- **Key features :**
 - Users do not have to manage, install or upgrade software; SaaS providers manage this.
 - Data is secure in the cloud; equipment failure does not result in loss of data.
 - Use of resources can be scaled depending on service needs.
 - Applications are accessible from virtually anywhere in the world.
- **Examples :** Google's G suite, GitHub, SAP, Slack, Dropbox.

4. Give brief idea about AI.

- Artificial intelligence (AI) is an area of computer science that highlights on creation of intelligent machines that work and react like humans.
- AI is different from robotics, in which machines sense their environment, perform calculations and do physical tasks either by themselves or under the direction of people.



Advantages of AI:

1. **Reduction in human error :** gives 100% accuracy
2. **Digital Assistance :** organizations use digital assistants to interact with customer for saving human resources. Example- chatbot

3. **Faster Decisions** take decisions faster than a human and carry out actions quicker.
4. **Daily Applications** : Apple's Siri, Window's Cortana, Google's OK Google

Disadvantages of AI:

1. **High Costs of Creation**- As the machines used in AI based environments are very complex and high in price, it increases the cost for overall set up.
2. **Unemployment**- As AI is replacing the majority of the repetitive tasks and other works with robots. This will reduced human interference but cause a major problems in the employment standards.

5.Explain the concept of 5G.

1. 5G is the **fifth generation of cellular network technology**.
2. **Digital cellular network**:-is service area covered by providers is divided into small geographical areas called cells.
3. 5G is the next generation of wireless .
4. **Carry very large amounts of data at a short distance**:- use a variety of spectrum bands, millimeter wave , radio spectrum. etc
5. **The drawback of the higher frequencies** : Easily obstructed by the walls of buildings, trees even changes in the weather.

Features of 5G:-

