

## QNo2 Artificial Intelligence is the new electricity

Artificial Intelligence is considered to be the new electricity because the transformative capability of AI.

Likewise how the electricity revolutionized industries and daily life in 19th century and 20th century. following are the some comparison.

### Quality of Prevailing:

As electricity has become necessary part of everyday life in modern life, just like AI has also become the most vital part of modern life.

In every sector like health care, education, finance, transportation, and entertainment, AI is part of every important sector because of its efficiency and innovation.

### AI is Innovative:

As electricity is the source of various innovation, which is leading to the creation of



new products, industries, and services.

Similarly, AI is also bringing innovation, which enables in the development of new product and technologies like autonomous vehicles, personalized medicine, and intelligent digital assistants.

### Productivity Gain:

Electricity brilliantly boosted the productivity and reducing manual tasks and reason of new manufacturing

processes. In the same manner, AI, is also escalating productivity by automating complex tasks, optimizing operations, and providing actionable insights through data

Analysis:

### Economic Benefits

With the invention of electricity which participate in enormous economic growth by providing new industries and new job opportunities.

AI is also expected to have the



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same impact, which can also transform existing roles.

Both AI and electricity have the power to transform society. At least as electricity provides foundation for new technologies advancement. As AI is also expected to be a foundational technology for future innovations in many fields.

### B Functions of CPU and Human Brain

Followings are the characteristics of CPU and human brain.

**Processing Information:** The CPU processes instructions from computer program through arithmetic logical, control, and input/output operations specified by instructions while brain processes informations received from the senses, performing complex tasks ~~as~~ as thinking, reasoning and decision making.

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### : Control Centres of CPU

#### and Human Brain:

CPU as a control unit of the computer, which manages and coordinates the activities of other hardware such as input/output devices. Likewise, the human brain acts as the control unit of the human body, which manages all the activities and functions of the human body, for instance, movement, sensation, and automatic processes.

#### Execution of instructions and Memory Management:

As CPU executes a series of instructions from memory, it decodes them and executes them. Similarly, the human brain also executes mental processes by receiving signals from neurons. It receives input from sensory organs and processes this information and outputs proper responses.

#### Decision Making:

CPU makes decisions on the



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basis of input data. The human brain makes sensory decisions decisions based on sensory inputs, past experiences and learned information. Memory Management, Parallel Processing, and adaptability and learning are the functions which are done by CPU and human brain also.

### C Balance Diet

A balance diet is a diet that provides all the essential nutrients in the right amount to maintain health, growth, and overall well-being. It includes various variety of foods from all the major food groups. For example carbohydrates, proteins, fats, vitamins, minerals, and water. A balance diet insures that the body gets enough energy and nutrients to function properly.

### Deficiency of Vitamin A:

night blindness, xerophthalmia, immune deficiency and skin issues.

### Deficiency of Vitamin B:

Vitamin B<sub>1</sub> causes muscle weakness, nerve damage and cardiovascular problems. B<sub>2</sub> causes sore throat, redness and swelling of lining of mouth and throat etc. B<sub>3</sub> causes dermatitis, diabetes etc. B<sub>6</sub> Anemia, skin diseases, etc. B<sub>9</sub> abnormal red blood cell etc. B<sub>12</sub> Pernicious anemia, neurological issues like numbness tingling in hands and feet etc.

### Deficiency of Vitamin C:

causes scurvy, weak eyes, immune system, skin problems and Anemia.

### D Optical Fibers

Optical fibers are thin strands of glass or plastic that transmit data



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as light signals. Their primary functions include data transmission, bandwidth capacity, low attenuation, immunity to electromagnetic interference and security.

### GPS

The Global Positioning System (GPS) is a satellite-based navigation system that provides location and time information anywhere on or near the earth where there is an unobstructed line of sight to four or more GPS satellites. It is used in various applications including navigation, mapping, and timing services.

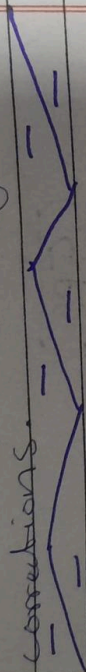
### 2D and 3D Location measured by Satellite:

2D location is measured (Latitude Longitude) through three steps, which are triangulation/trilateration, distance calculation, and intersection. Where as 3D location (Latitude, Longitude, Altitude) is measured through four steps, which are triangulation/trilateration, distance calculation, and intersection.

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Longitude and altitude) use a size  
location on ~~three~~ four steps as  
Four satellites, Fourth satellite for  
Altitude, precise timing, and



### Q103A: Why Atoms Form Chemical

#### Bonds:

Atoms form chemical bonds to  
achieve greater stability. Most  
atoms are more stable when  
their outermost electron shell or  
valence shell, is filled with  
electrons. This drive for stability  
follows the octet rule, which  
states that atoms tend to form  
bonds to have eight electrons in  
their valence shells (except for  
some small atoms like hydrogen  
and helium, which follow the duet  
rule).

In water, covalent bonds



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form by sharing electrons between oxygen and hydrogen atoms, leading to a stable molecule with unique properties.

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## Doping

Doping refers to the intentional introduction of impurities into a semiconductor material to alter its electrical properties. This process is critical in the manufacturing of electronic devices, such as transistors, diodes, and integrated circuits.

There are two main types of doping: N-type Doping and P-type doping.

## Type of Ceramics

### Traditional Ceramics:

Clay based products includes items such as pottery, bricks, and tiles.

Porcelain: A type of fine, white ceramic made from kaolin clay, feldspar, and quartz.



Stoneware: Durable ceramics made from a specific type of clay that is fired at high temperature, often used for cookware and dinnerware.

### Advanced Ceramics:

Oxide Ceramics include materials like alumina ( $Al_2O_3$ ) and zirconia ( $ZrO_2$ ). These ceramics are known for their high melting points, and hardness, and resistance to chemical attacks.

### Carbide Ceramics: Includes silicon

Carbide ( $SiC$ ) and boron carbide ( $B_4C$ ). These are extremely hard and used in applications such as abrasives armor and high temperature semi-conductors. Hetero Ceramics Silicate Ceramics and Bioceramics are also type of Ceramics.

### Consequences of Global Warming:



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### Rising Sea Level:

Melting Polar ice caps and glaciers contribute to rising sea levels which can lead to coastal erosion, flooding and displacement of populations.

### Extreme Weather Events:

Global warming is linked to an increase in the frequency and intensity of extreme weather events i.e. hurricanes, droughts, floods and wildfires etc.

### Loss of Biodiversity

Changes in temperature cause destruction in habitat of different plant and animals.

### Ocean acidification, health

risks, agriculture disruptions, water scarcity and economic losses are also some element of global warming



## Merit of Global Warming

### Longer Growing Seasons:

Warmer temperature can extend the growing season in some regions, potentially increasing agricultural productivity.

### Increased Plant Growth:

Higher level of CO<sub>2</sub> creates photosynthesis increases, leading to more robust plants. Access to Arctic Resources and shipping routes are also merit of Global warming.

## POLIO

Polio, or Poliomyelitis, is a highly contagious viral disease caused by the poliovirus.

It primarily affects young children and can lead to

paralysis, muscle weakness, and in severe cases death.

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The virus spread through person to person contact, often via contaminated water or food, and multiplies in the intestine. The majority of infections are asymptomatic but in a small percentage of cases the virus can invade the nervous system and cause paralysis.

### Challenges in Eradication of Polio in Pakistan

- (1) Security Issues: Attacks on health workers. Conflict zones are inaccessible to health workers.
- (2) Misinformation and Distrust: Rumors and misinformation about polio drops are also common.
- (3) Geographical and logistical barriers: Remote and hostile reach areas are also challenges.
- (4) Cultural and Social factors: It includes gender dynamics.



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are also challenge in  
association of Prio in Pakistan  
⑤ Weak health system are also  
the reason and insufficient funding

⑥ Political instability, Sectors  
Resource issues and coordination  
and collaboration issues are  
also main challenges to  
associate Prio in Pakistan.