

Q. No: 2

(a) What are the potential benefits and challenges of implementing AI in health care? Discuss the impact of AI on patient care and medical diagnosis.

Answer:

Artificial Intelligence Originated in the United States in 1958, at which time its essence was an algorithm based on estab. analyzing existing data and self learning. After decades of its development AI has been integrated into health care. However, several problems have emerged with its rapid development, therefore it is not widely applied in health care practice. Followings are the potential benefits and challenges of AI in health care.

(a) **Benefits:** —

(i) Medical Benefits

- Helps in prediction of various risks and diseases
- Helps in prevention and control of various diseases
- Leads to better data-driven decisions within the health care system.
- Supports mental health

(ii) Economic and Social Benefits

- Reduction in posttreatment expenditures
- Cost saving through early diagnosis
- Cost saving with enhanced clinical trials
- Patient empowerment
- Relieving medical practitioner's workload.

Challenges :-

- (1) AI diagnosis is not always superior to human diagnosis
- (2) AI programs may be difficult to understand and overly ambitious.
- (3) Implementation issues
- (4) Transparency issues and risks with data sharing
- (5) Biases
- (6) AI cannot be held accountable
- (7) Regulatory concerns
- (8) Social challenges.

The impacts of AI on patient care and medical diagnosis:

AI is revolutionizing patient care and medical diagnosis by enhancing accuracy, speed and personalization. AI powered tools can analyze medical images.

data, and research findings to identify diseases earlier, predict effective treatments, reduced costs and improved patient outcomes. Moreover, by scanning large data sets to find similar cases, AI can help clinicians not only get to a diagnosis more quickly but also find examples of treatments that have been effective in people with this condition.

who in 1930s and 1940s, truly popularized this notion of the explosive start of the Universe. He called this initial explosion the big bang - the name by which it has been everywhere known ever since.

- In 1949 Gamow had pointed out that, if big bang had taken place, the radiation accompanying it should have lost energy as the universe expanded and should now exist in the form of radio-wave.

* EVIDENCE NO# (1)

→ In May 1964, the German-American physicist Arno Allan Penzias and an American radio astronomer Robert Woodrow Wilson, following the advice of Dicke, detected a radio wave background with characteristics much like those predicted by Gamow. It indicated an average temperature of the universe of 3 K. The discovery of this radio wave background is considered by most astronomers to be conclusive evidence in favour of the big bang theory.

about 13.7 billion years ago

Mon Tue Wed Thu Fri Sat

Due:

Some astronomers speculate that actually the universe began as a very thin gas that slowly condensed, forming stars and galaxies perhaps, and continued to contract until it formed a cosmic egg in a big crunch.

Then it suddenly exploded.

Time, space and matter all began with the big bang.

It then cooled down in a period known as inflation.

As the universe expanded and cooled, energy changed into particles of matter and anti-

matter. These two opposite types of particles largely destroyed each other. But some matter survived.

More stable particles called protons and neutrons started to form when the universe was one second old.

Later the protons and neutrons were able to combine to form the ~~nuclei~~ nuclei of hydrogen and helium atoms.

About 200 million years later, the temperature dropped and the gravitational attraction pulled the atoms together.

into clumps, which was the beginning of the galaxies. Around 800 billion years later the solar system was formed in the similar way. Atomic nuclei could finally capture electrons to form atoms. The universe was filled with clouds of hydrogen and helium gas. These clouds began to clump and gases formed all celestial bodies afterwards.

Evidence for Big Bang

By analysing the spectrum of light from a star or galaxy, astronomers can tell how fast it is moving, and whether it is moving towards earth or away from earth. If an object is moving away from earth, its light shifts to longer wavelengths of wave length, an effect known as red shift. If an object is moving towards earth, its light shifts to shorter, blue wave length, an effect known as blue shift. Red shift supports the big bang theory. It was 1929 that Edwin Hubble used spectroscopic

red shift data to measure the speed these objects were travelling. Then graphed their distance from earth against their speed. He discovered that the speed at which astronomical objects move apart is proportional to their distance from each other.

→ Another piece is the discovery of cosmic microwave radiations in 1960s. According to Penzias and Wilson, these radiations are received from everywhere in all parts of the Universe and is thought to be the heat left over from the original expansion or big bang.

→ Some of the other theories argue that the Big Bang theory is based on a false premise. Some instead, prefer to build theories on a static universe which is what originally predicted by Einstein's theory of general relativity.

driven by current global warming,
Primarily through the burning of
fossil fuels. This process releases
greenhouse gases like carbon dioxide
(CO₂) into the atmosphere,
trapping heat and causing global
warming. Deforestation and other
land use changes also contribute
to the problem by reducing
the planet's capacity to absorb
CO₂. Various other activities such
as agriculture and industrial
process also contribute to
release of methane and nitrous
oxide.

To mitigate the impacts of global
warming, pragmatic measures are
required to be taken. These
includes transitioning to renewable
energy sources, improving energy
efficiency, adopting sustainable
transportation and implementing
sustainable and land management
practices.