General Knowledge - I
General Science and Ability
Part - II
Section - I

Q NO: 2

(i)

Benefits of AI in health care:

1) Accurate diagnosis: AI systems can diagnose medical images like X-rays, MRI thus helping in early diagnosis of diseases like cancer.

2) Predictive Analysis: AI can predict outbreaks and individual health risk using data.

3) Robot-assisted Surgeries: Enhances precision

4) Virtual Health Assistants: Chatbots and AI tools help patients manage medicine and appointments.

5) Administrative Efficiency: Automate hospital workflows like billing and scheduling.

Challenges:

1) Data Privacy: Risk of patient data leaks.
2) Bias in Algorithms: Poor training data can lead to misdiagnosis.
3) Cost of Implementation: High initial investment as AI consumes a lot.
4) Ethical Concerns: Can machines replace human empathy in care?

Impact on patient care and diagnosis:

1) Faster Diagnosis: AI detects stroke signs in 15 seconds.

2) Personalized treatment plans based on genetic data.

3) Reduces human errors

4) If highly advances then can replace doctors in coming time as Bill Gates said:

"AI can replace teachers and doctors in coming 10 years"

(b)

Big Bang Theory: proposes that the universe originated from a single extremely hot and dense point approximately 13.8 billion years ago and has been expanding ever since.

Significance:
→ Explains the origin of space, matter and time.
→ Foundation of modern cosmology
→ Helps understanding galaxy formation and cosmic evolution.

Add diagrams

Key Evidence:

1) Cosmic Microwave Background Radiation (CMB): Discovered in 1965, remnants of early universe heat.

2) Redshift of galaxies: Edwin Hubble

Observes galaxies moving away, proving expansion.

3. **Abundance of Light Elements:**
Hydrogen and helium ratios match predictions of Big-Bang nucleosynthesis.

(c)

Primary Causes of Global Warming:

1) Greenhouse gas emission (GHGs) like CH_4, CO_2 from fossil fuels. *Define it*

2) Deforestation: Reduces CO_2 absorption

3) Industrial Activites lead to air pollution

4) Urbanization lead to cutting down of forests and increasing CO_2 level in air. *Give natural causes as well*

Effects:

1) Melting of glaciers and thus rising of sea levels

2) Increased frequency of floods, droughts and headwaves as indicated by present environmental conditions of Pakistan.

3) Threats to biodiversity and agriculture

Human Contribution:

1) Burning of fossil fuels for energy purpose.

2) Deforestation for urban expansion.

3) Industrial emissions and waste production.

Mitigation Strategies:

1. Shift to renewable energy sources like solar energy, wind energy e.t.c.

2. Afforestation and Reforestation

3. Energy efficiency in Transport and industry.

4. Set certain emmission criteria on vehicles and, automotives. and also on industries

5. Carbon Taxes and international climate aggrement COP, montereal ,.t.c.

(d)

Key components of Disaster Management Plan:

1. Risk Assesment
2. Preparedness
3. Response
4. Recovery
5. Mitigation

Define DRM

Importance:

→ Preparedness: Community drills, early warning system (e.g Tsunami alerts in Japan)

→ Response: Immediate relief - medical aid, evacuation.

→ Recovery: Rehabilitation, rebuilding infrastructure, restoring services.

<u>Examples:</u>

→ Pakistan's NDMA: Conducts awareness programs and and coordinates releif.

→ Japan Earthquake Strategy (2011): Efficient evacuation and Public awareness minimized loss of life.