Q#1:- Write a short note on artificial intelligence.

1) Definition of Artificial intelligence :-

Artificial intelligence is defined as:-

"computer systems capable of performing complex tasks that historically only a human could do."

2) Sub-fields of Artificial intelligence :-

Following are the sub-fields of artificial intelligence :-

| Machine Learning |

| Natural Language Processing |

| Computer Vision |

| Robotics | | Expert Systems |

3) Applications of Artificial intelligence :-

(i) Healthcare :- AI helps in disease diagnosis, drug discovery, patient care assistance etc.

(ii) Finance :- AI coordinates in fraud detection, algorithmic trading, credit scoring etc.
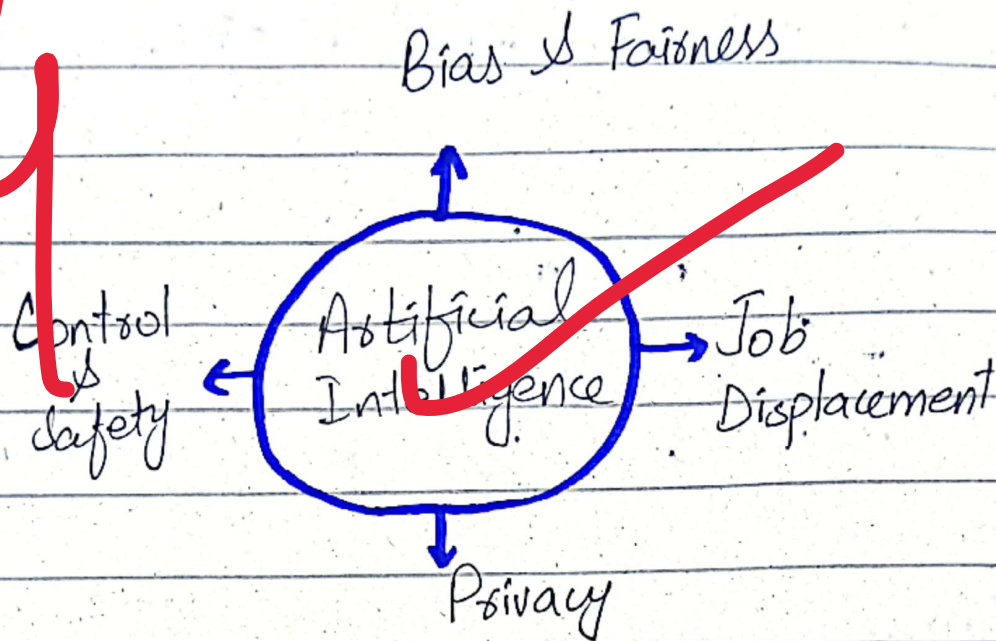
(iii) Transportation :- AI assists in autonomous vehicles usage, running traffic management systems etc.

(iv) Entertainment :- Content recommendation, video game design, etc are enjoyed with the help of AI.

(v) Manufacturing :- Predictive maintenance, quality control, production optimization etc. are also controlled by AI.

4) Ethical Considerations regarding AI :-

Bias & Fairness

Control & Safety ← Artificial Intelligence → Job Displacement

Privacy

Q #2:- Write short notes on:-
   a) Fibre Optics
   b) GPS

a) Fibre Optics:-
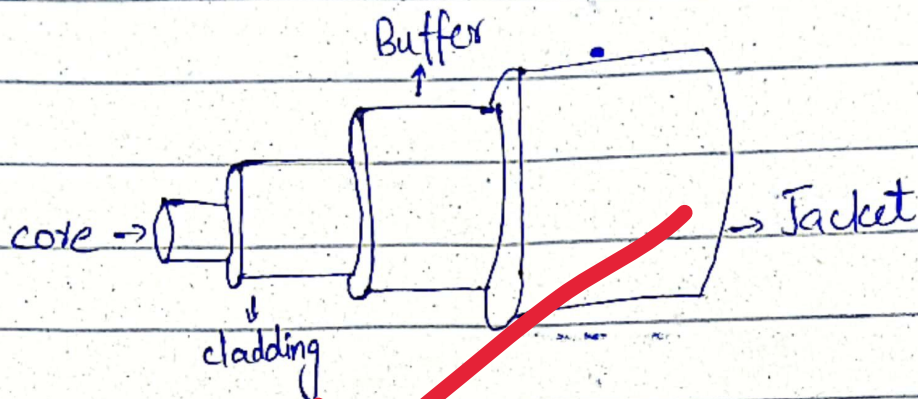
1) Definition of fibre optics:-
Fibre optics can be defined as:-

"Flexible glass or plastic fibre that can transmit light from one end to the other."

It is the branch of science which deals with optical fibres.

2) <u>Structure of fibre optics:-</u>

Core is made of glass. Core is sorrounded by a layer of material called **cladding**. It is made of glass or plastic. For extra protection, cladding is enclosed in an additional layer called **coating/buffer. Jackets** make enable to recognise the exact colour of cable.
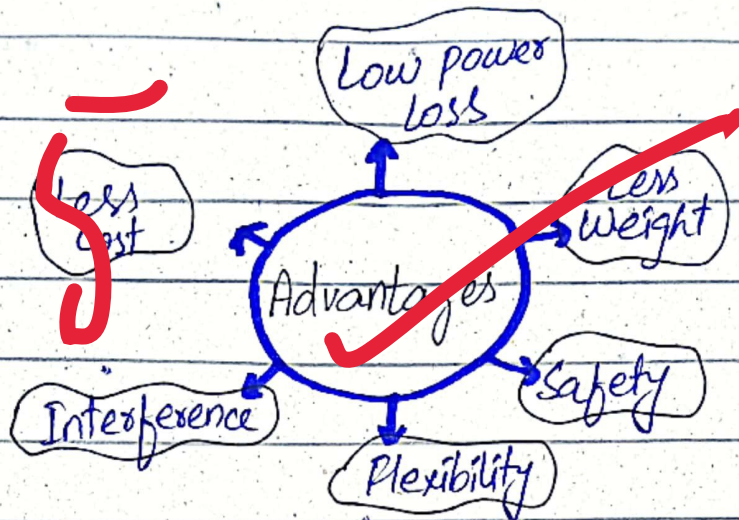
3) <u>Types of Fibre Optics:-</u>

Single-mode fibre

Multi-mode fibre

4) Advantages of b fibre optics :-

Advantages:
- Low power loss
- Less cost
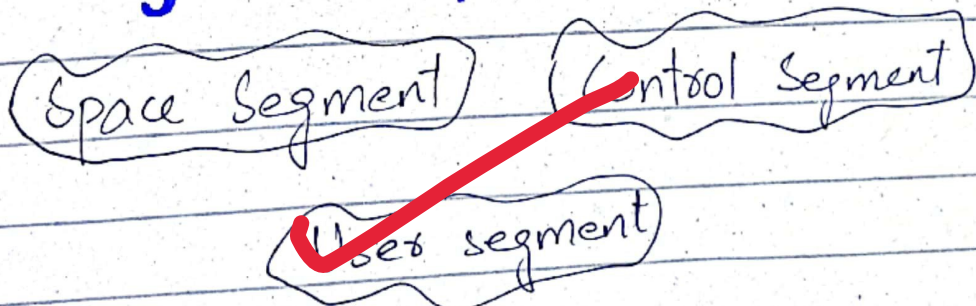- Less Weight
- Interference
- Safety
- Flexibility

b) GPS :-

1) Definition of GPS :-

Global Positioning system , originally Navstar GPS , is a satellite - based radio navigation system owned by United States Government operated by United States Space Force.

2) Segments of GPS :-

Space Segment   Control Segment

User segment

3) Applications of GPS :-

Road transport   Aviation

Shipping & Rail transport

Science   Security

Telecommunication

Financial Services

Social Activities

Discuss in a bit more detail