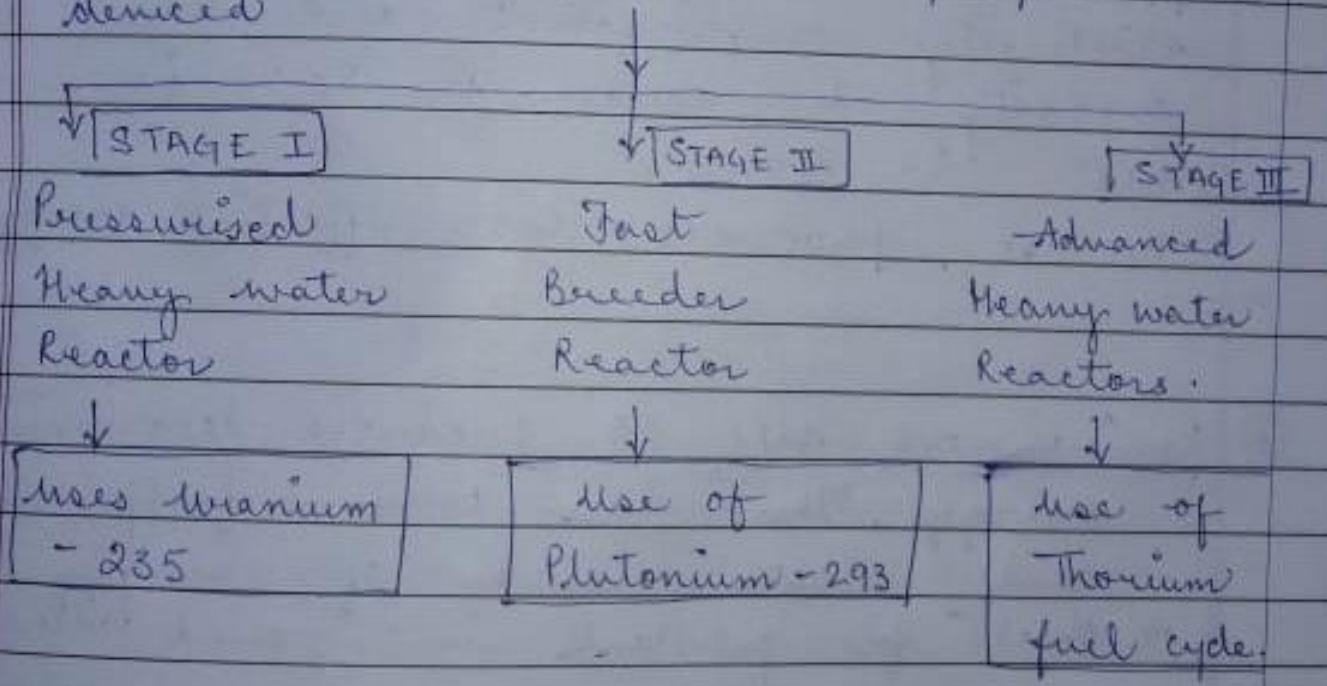


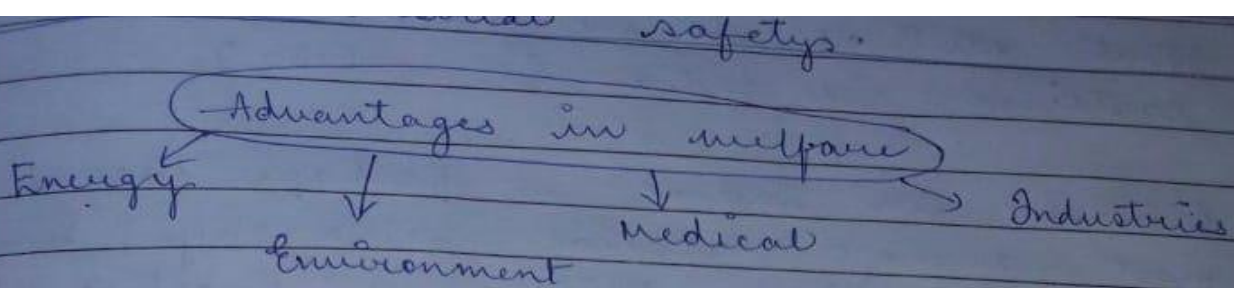
Q. Give an account of the growth and development of nuclear science and technology in India. What is the advantage of nuclear research in welfare in India? (150W)

The growth of India's nuclear program was initiated by Dr. Homi Bhabha in 1950s. The key objective was to make India energy independent via use of uranium (initially) and Thorium (final goal).

Thus, three stage nuclear program was devised



Currently we are done with the Fast Breeder reactor at Kalapakkam Tamil Nadu and heading towards the designs of stage III.



Energy → Nuclear energy produces 3% electricity currently (of total requirement) and can raise to 50% in next 30 years.
→ Also cost effective.

Environment → clean source of energy - as produces decarbonise electricity
→ check for pollutants in ground water by isotopes.

Medicines → greater diagnose and treatment by isotopes to various diseases (eg Cancer, Thyroid)
→ Provides treatment to more variety of diseases.

Industries → Isotopes used in machine maintenance - check for cracks, faulted welds & leakage.
→ Ensures industrial security.

Nuclear energy has vast opportunities but needed careful handling and practical laws.