**TECHNOLOGY**

**2.1 WHAT IS TECHNOLOGY**

Information, techniques and tools which people utilise the material resources of their environment to satisfy their needs. The ascent of man is a story of technology

**2.2 CHARATERISTICS OF TECHNOLOGY**

1. It is present in all cultures.

2. It is knowledge based and involves application of knowledge to solve problems.

3. It is accumulative

4. It is fundamental to humanity and survival

5. It alters culture and society

6. It is observable and future oriented

7. It seeks a harmonious relationship between human life and nature.

8. It is an extension of human body and faculties

**2.3 LEVELS OF TECHNOLOGY**

**2.3.1 LOW LEVEL TECHNOLOGY (before 3200BC)**

- This level is characterised by basic primitive tools and machines be it natural, adapted or manufactured.

- The tools include bows, arrows, spears, stone hammer, stone axe etc.

- The machines include lever, wedge, inclined plane, pulley, wheel and axle etc.

**2.3.2 INTERMEDIATE LEVEL TECHNOLOGY (3500BC to date)**

- This level is charaterised by tools manufactured for multiple purposes in different sizes by use of different materials.

- Intermediate level machines differ from primitive ones by the role of prime movers such as wind, water and natural forces as well as stream engines, the electric motor, steam turbines, intrnal combustion diesel enginine

**2.3.3 HIGH LEVEL TECHNOLOGY (1950 AD to date)**

- This level is characterised by high level tools (usually automated) and machines. The emphasis is more on assisting the mind and not the body.

- High level technology is further subdivided into “Fordism” and “ICT”. This depends on the level of emphasis placed on standardization and automation on one part (Fordism) or information and communication technology on the other (ICT).

**2.3.4 DIFFERENCES BETWEEN FORDISM AND ICT**

**2.4 PERISCOPE OF INDUSTRIAL WAVES**

|  |  |  |
| --- | --- | --- |
| Industrial Wave | Period | Technology and Main Products |
| First Wave | 1770 – 1830 (First Industrial Revolution) | Mechanization, iron, water, power, textiles, commerce |
| Second Wave | 1830 – 1880 (Victorian Prosperity) | Steam Power, Steam Engines, Rail, Ships, Cotton etc |
| Third Wave | 1880 – 1945 (Great Depression/Threshold age) | Electricity, chemicals, internal combustion engine, steel. |
| Fourth Wave | 1945 – 1990 (Golden age of Keynesian Full Employment (Cold War Era)) | Fordist paradigm of mass production. Standardisation and automation; elementary cybernetics; Nuclear Technology; automobiles; aircraft, petrochemicals, space techonology |
| Fifth Wave | 1990 – 2010 (Post Cold War Era) | Dugital Networks, software, Information and Communication Technology (ICT), biotechnology. |
| Sixth Wave | 2010 - 2020 | Sustainability, Radical Resource productivity, whole system design, renewable energy, genetic engineering, nanotechnology, cloning etc. |

**2.5** **NIGERIA: HIGHLIGHTS OF THE POST-COLONIAL INDUSTRIALIZATION PERIOD (1961 – 1979)**

2.5.1 Active participation by Government in Economy;

Infrastructural facilities

Built factories

Agric production (failed to locally source for its raw materials)

2.5.2 Nigerian Civil War

- Active roles by Engineers on both sides of the divide

- They ran utilities

- They blew up and built bridges

- They built local refinery in Biafra

- Local manufacture of weapons (hand grenades, anti-aircraft rockets etc.)

**2.6 TECHNOLOGY AND INVESTMENT**

Technology and Investment which drives the other?

Generally a symbiotic relationship exists but it also depends on the nature of the technology.

To be sure, when technology is disruptive, it beckons at investment; otherwise investment rides on product demand to seek out the appropriate technology.

**2.7 ASSIGNMENT**

Use internet searches to compose one-page write-up on each of the following topics as assigned to each Group.

1. Nanotechnology
2. Biotechnology; explain what is meant by the biotechnological revolution, what are some of technologies involved and why are they so revolutionary.
3. Telemedicine
4. Genetic Medicine
5. Xenotransplantation; its latest pros and cons and progress made to date in this field
6. Virus transfer
7. Bionics; discuss the latest developments and the ethical issues involved
8. Ergonomics
9. What are the fields of neural engineering and neuroscience
10. Latest status of the Human Genome Project and its implications
11. What is the capacity and capability of the latest most highly developed computer?
12. Explain some of the newest developments in telecommunications
13. Teleportation
14. Driverless Car
15. Turing Test
16. 3D Printing
17. Internet of Things (IoT)