GNS 301 COMPENDIUM

STUDIES IN PHILOSOPHY, SCIENCE AND ENVIRONMENT

The challenges encountered by our colleagues in reading the newly revised recommended textbook in depth, and the need to employ a more nuanced and crafty approach, targeted at harnessing the overall performance of our colleagues in the course, prompted us to come up with this initiative. A 12-Man committee was created to come up with this compilation, and the committee was able to do justice to it.

This compilation comprises 21 chapters, all drawn from the textbook. It is our hope that this compilation will go a long way in ameliorating the challenges faced by our colleagues in this course.

Students are to note that this work is not meant to overwrite existing literature or materials, but is targeted to serve as a worthwhile and conspicuous complement which will to a large extent guarantee resounding success in the course.

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CHAPTER ONE

INTRODUCTION TO PHILOSOPHY

- The word "**PHILOSOPHY**" comes from two Greek words, **Philo/Philein** (to love) and **Sophia** (wisdom), which means "**The love of wisdom**".
- **Wisdom** consists in the ability to draw meaning from experience, to judge experience wisely, to see beyond what merely meets the eye.
- The **Philosopher** is literally 'a lover of wisdom', someone who has committed his or her life to the difficulty task or clarifying and understanding the universe and human existence, and who unwilling to abide by traditional dogmas and beliefs undertakes the critical and rational evaluation of his or her experience (NYONG 1994, 4).
- **Philosophy** attempt to examine our ordinary questions in a more systematic and disciplined way. (JASON 2007, 2).
- There is difference between philosophical wisdom and ordinary meaning of word. **Philosophical wisdom** is the pursuit of truth, and not the word of cunning.
- **Philosophy** as wisdom is the root from which philosophy arises.
- **Plato** and **Aristotle** argues that philosophy begins in ordinary wonder, when people look at world around them, and inquire about its origins and nature, and their place and functioning therein.
- **Philosophizing** means distance oneself, not from the things of everyday life, but from their common interpretations, from the prevailing valuations given these things.
- The meaning of **wonder** lies in the experience that the world is more profound, more commodious, and more mysterious than it appears to our everyday understanding.
- **Wonder** is the realization that our ordinary understanding and sense of the world does not capture the totality of the reality of the world.
- **Wonder** realizes that the ordinary bourgeois conceptions, idea, and understandings that we have received, based on utility, expediency, and conformity, are not the totality of what is, nor do they capture the fullness and complexity of the world and all that is therein.
- **Metaphysics** (or ontology) is one of the main branches of philosophy.
- **Metaphysics** is defined as the study of reality. It is a theory about what really exist.
- Through **metaphysics**, philosophy concerns itself with nature of existence, being and the world. Some of the questions that metaphysics deals with are: what is ultimate reality? Is the ultimate reality single or multiple? Does mind exist?
- **Epistemology** has been defined as the quest for truth and knowledge.
- **Philosophy**, through **epistemology**, studies the nature and possibility of knowledge.
- **Questions that epistemology deals are:** what is knowledge? Is the knowledge acquired exclusively through the senses or by some other means? How do we know that what we perceive through our sense is correct?
- **Ethics:** philosophy as the quest for morality
- **Ethics**, also known as moral philosophy, refers to the problem of the morality of man. It examines the right and wrong of human actions.

- **Ethics** concerns itself with discovering standard or system one may use in determining what or who is good.
- **Questions raised in the field of ethics are:** what is good? What is the good life? Why should I be moral? What is obligation? What is duty? Etc.
- **Morality** is about real life people, engaged in the business of living with others as well as with themselves, within the universes, within the universe for which they have certain obligation and responsibilities.
- Philosophy from the root of logic is the study of the principles of right reasoning.
- **Logic** is the basic tool that philosopher use to investigate reality.
- **Questions raised by logic are:** what makes an argument valid or invalid? and What is a sound argument?
- **Logic** involves deducing conclusions from premises and identifying contradictions, or lack of them, in belief and arguments.
- **Philosophy** is also about analysis of concepts, statements assertions in our quest for the truth.
- **Karl Marx** says that we study philosophy not just to understand the world but to change it.

CHAPTER 2

INTRODUCTION TO LOGIC

- **Logic** is a basic tool of philosophy.
- **Philosophy** is about thinking.
- **Logic** is a technic of reasoning or critical thinking.
- **Thinking** is a fundamental feature of humanity.
- The capacity for **critical thinking** requires a deep reflective process of human rational cognition beyond the everyday pedestrian use of the brain function.
- The capacity for **critical thinking** helps in critically reflecting on issues in order to adequately proffer systematic ways to solving technical problems.
- **Critical thinking** is the systematic process of reasoning.
- **Logic** is considered as the basic principles, techniques and procedures of reasoning for distinguishing between good (correct) and bad (incorrect) forms of arguments.
- The tool that logic uses in order to become systematic is called **arguments**.
- In logic, an **argument** is a set of propositions (statements) in which the premises are used to support the conclusion.
- The **conclusion** is derived from the premises.
- **Arguments** consists of premises and a conclusion.
- **Premises** are set of statements in an argument.
- The **conclusion** is also a statement separated from the premises with a conclusion indicator.
- Any statement, whether a premise or a conclusion, is referred to as proposition.
- A **deductive argument** is one in which its premises proceed from general situations to arrive at its conclusion in particular instances.
- A **deductive argument** is considered a valid argument if its premises lead successfully to a conclusion.
- In **deductive arguments**, the premises proceed from particular instances to conclusion of general situations.
- The strength of an inductive argument is on a degree of PROBABILITY.
- **Propositions** can be categorized into two kinds: **simple** and **compound**.
- A **simple proposition** does not contain any other proposition as a component part. For example, “the boy is good”.
- A **compound proposition** contains another proposition or set of propositions as component parts. For example, “if you are going to Canada then you need a visa”.
- There are three characteristics of relational propositions. These include: **symmetry**, **transitivity** and **reflexivity**.
- The subdivisions of symmetry are, **symmetrical**, **asymmetrical** and **non-symmetical**.
- The subdivisions of transitivity are, **transitive**, **intransitive** and **non-transitive.**
- The subdivisions of reflexivity are, **reflexive**, **irreflexive** and **non-reflexive.**
- A relation is **symmetrical** if it is such that if a person, place or thing ‘A’ has the relation to another person, place, or thing ‘B’, then ‘B’ must have the same

relation to ‘A’. Where relation ‘is the contemporary of’, ‘is the cousin of’, ‘is the spouse of’ is symmetrical.

- A relation is **asymmetrical** if it is such an entity where ‘A’ has the relation to another entity ‘B’, then ‘B’ cannot have the relation to ‘A’. The relation ‘can outrun’, ‘is the father of’, ‘is the employer of’ is an asymmetrical relation.
- A relation is **non-symmetrical** if it is neither symmetrical nor asymmetrical. That is to say, a relation is non-symmetrical if it is such that if an entity ‘A’ has the relation to another entity ‘B’ then ‘B’ may or may not have the relation ‘A’. The relation ‘is the sister of’, ‘is the brother of’, ‘hates’, ‘loves’ are all non-symmetrical.
- A relation is **transitive** if it is such that if an entity ‘A’ has the relation to a second entity ‘B’, and ‘B’ has the relation to a third entity ‘C’, then ‘A’ must have the relation to ‘C’. The relations ‘is younger than’, ‘is taller than’, ‘is equal to’ are all transitive.
- A relation is **intransitive** if it is such that if an entity ‘A’ has the relation to another entity ‘B’ and ‘B’ has the same relation to another entity ‘C’, then ‘A’ cannot have the relation to ‘C’. The relations ‘is the father of’, ‘is the mother of’, ‘is the uncle of’ are intransitive.
- A relation is **non-transitive** if it is such that if an entity ‘A’ has the relation to another entity ‘B’ and ‘B’ has the relation to a third entity ‘C’, then ‘A’ may or may not have to relate to ‘C’. ‘Loves’, ‘is the friend or’, ‘is jealous of’, ‘despises’ are all non-transitive.
- A relation is **reflexive** if it is such that an entity ‘A’ must have the relation to itself. The relation ‘is the same as’, ‘is identical with’ ‘has the same weight as’ are all reflexive relations.
- A relation is **irreflexive** if it is such that an entity ‘A’ cannot have the relation to itself. The relation ‘is the father of’, ‘is the mother of’, ‘is to the east of’ are all irreflexive.
- A relation is **non-reflexive** if it is neither reflexive nor irreflexive. In other words, a relation is non-reflexive if it is such that an entity ‘A’ may or may not have it to itself. Thus, the relations ‘loves’, ‘despises’, ‘hates’ and ‘is jealous of’ are non-reflexive.
- In logic, there are special symbols of logical connective. These symbols are standard. These symbols include: **conjunction**, **disjunction**, **material implication/conditional**, **bi-conditional or equivalence**, and **negation**.
- The word for **conjunction** is “**AND**”, and the symbol for this is “**DOT”** written as “.” The conjunction is used to conjoin two simple propositions to form the complex proposition. Example: Afisi came to school (**P**) and Afisi taught logic today (**Q**). Symbolized “P**.**Q”.
- The word for **disjunction** is “**OR**”, and the symbol for this is “**v**”. Two simple propositions are combined to form a contrasting compound proposition, Example: In every examination, the students would either pass or fail. Symbolized “P**v**Q”.
- The word for **material implication** is “**THEN**”, and the symbol for it is “**ɔ**”. In a proposition, the material implication reveals a conditionality in such a way that

whenever the **antecedent** proposition is displayed then the **consequent** proposition follows.

- The **antecedent** proposition is represented by an "if", while **consequent** proposition is preceded by a "then". Example: "If Ada was tired yesterday, then she must have slept heavily yesterday". Symbolized "P ↄ Q".
- The words for **bi-conditional** is "if and only if", and the symbol is equivalence "≡". Example: "Taiwo slept heavily yesterday if and only if Taiwo was tired". Symbolized "P≡Q".
- The word for **negation** is "**NOT**", and the symbol for it is "**~**". Negation operates with the confines of propositions in such a way that if a true proposition is negated, such a proposition becomes false, and vice versa. Example: It is raining (P), It is not raining (~P).
- A **truth table** is a graphic representation of arguments to display all possible combinations of truth values.
- A **truth table** is used to define truth-functional connectives and to test the validity or invalidity of arguments.
- **Conjunction** rule is true when both conjunction are true, but false in all other cases.

P	Q	P **.** Q
T	T	T
T	F	F
F	T	F
F	F	F

- **Disjunction** rule is true when both disjuncts are true or one of them is true, but false in all other cases.

P	Q	P **v** Q
T	T	T
T	F	T
F	T	T
F	F	F

- **Material implication** rule is false when the Antecedent if true and the Consequent is false, but true in all other cases.

P	Q	P **ↄ** Q
T	T	T
T	F	F
F	T	T
F	F	T

- **Bi-conditional** rule is true when both conditions are true and false, but false in all other cases.

P	Q	P **≡** Q
T	T	T
T	F	F
F	T	F
F	F	T

- **Negation** rule is such that a proposition becomes false when the corresponding proposition is true, and vice versa.
- A **categorical proposition** is about classes or categories.
- There are usually two classes; the **subject** (**S**) and the **predicate** (**P**).
- There are **four** different standard forms of categorical propositions:
  1. All lawyers are liars (**A**) Universal Affirmative 'All **S** is **P**'
  2. No lawyers are liars (**E**) Universal Negative 'No **S** is **P**'

3. Some lawyers are liars (**I**) Particular Affirmative 'Some **S** is **P**'
4. Some lawyers are not liars (**O**) Particular Negative 'Some S is not **P**'

- A **categorical syllogisms** comprises of two premises and a conclusion. The conclusion can be inferred from two premises.
- A **categorical syllogisms** is a seductive argument that consists of three propositions:
  1. No Doctors are Nurses.
  2. Some Technologists are Nurses.
  3. Therefore Technologists are not Doctors.

  Note: Subject (**S**) and Predicate (**P**) appear in the examples above.
- **Categorical syllogisms** has three terms which are: Major, Minor and Middle Terms.
- The **major term** is the predicate of the conclusion of a syllogism. Example: **DOCTORS**.
- **The minor term** is the subject of the conclusion of a syllogism. Example: **technologists**.
- The **middle term** is the term which does not occur in the conclusion, but appears in the two premises. Example: **NURSES**.
- To get the **mood** of a standard-form syllogism, each categorical proposition above would be represented by what letter (**A**, **E**, **I**, or **O**) of the standard-form categorical proposition represents.
- The **major premise** is an **E** proposition.
- The **minor premise** is an **I** proposition.
- The **conclusion** is an **O** proposition.
- The **mood** of the syllogism is **EIO**.
- To find the **figure** of a categorical syllogisms, the standard-form syllogism format should be used.
- The **format** for **figure** is of **four** possible different figures.
- They are schematized in the following array, where only the relative positions of the terms are shown, and reference to mood is suppressed by not representing either quantities or copulas:
- **First figure**

  M-P

  S-M

  S-P
- **Second figure**

  P-M

  S-M

  S-P
- **Third figure**

  M-P

  M-S

  S-P
- **Fourth figure**

  P-M

  M-S

  S-P

CHAPTER 3

INTRODUCTION TO ETHICS

- Morality comes from a Latin word, "**mos**" meaning custom or usage
- Ethics comes from Greek "**ethos**" whose meaning is the same
- **Moral** refers to actual human conducts with regard to right and wrong, good and evil
- **Ethics** refers to a theoretical overview of morality, a system or code
- The development of Western ethics originated from **Greek** and the **Judeo-Christian**
- In the Greek tradition, **ethics** was conceived as relating to "good life" while righteousness before God and love for God by Judeo- Christian.
- Ethics is subdivide into 3 branches: **Meta-ethics, Normative ethics and Empirical or Descriptive ethics**
- **Meta- ethics** or analytic ethics is a branch that analyses ethical terms such as good , bad, right, wrong, evil obligation etc.
- Meta- ethics subdivision include: **naturalism or ethical naturalism and anti-naturalism.**
- **Normative ethics** is that branch that focuses on the norms, standards by which human beings conduct themselves
- **Empirical or Descriptive ethics** is the branch of ethics that examines the moral codes of various societies
- There are 2 broad ways by which ethical theories are studied "**systematic** and the **historical**"
- Systematic approach clarifies ethical theories by focusing on their distinctive features while historical studies ethics from the historical standpoint, it groups theories in ***time*** and ***space***
- **Ethical egoism** preaches action which consequences are in interest of the self-aimed at one self-interest while **utilitarianism** emphasize the consideration of an action and the consequences on a large number including my humble self.
- Consequentialist ethical theories are also referred to as teleological theories, teleological comes from teleology meaning "***the study of end causes***"
- **Ethical egoism** consider how human being ought to behave while **psychological egoism** consider how human beings behave and the difference between "is" and "ought"
- **Utilitarianism** was first proposed by David Hume (1711-1776), is an ethical theory and the central principle is the principle of utility. Utilitarian's are grouped into "act and rule utilitarianism"
- The non-consequential theories see no relevance in consequences of action while social contract theories explains what the purpose of the state is and the nature of morality.

CHAPTER 4

A HISTORICAL PERSPECTIVE TO WESTERN TRADITIONAL EPISTEMOLOGY

- The world epistemology is coined from two Greek word "**episteme**" which means knowledge and "**logos**" which means idea or reason.
- Plato's theories of "**divided line**" and the "**allergory of the cave**" established affinity between epistemology and metaphysics.
- **Plato** was insightful in comparing knowledge with the "Good" in his theory of forms
- For **Plato**, as the sun illuminates objects and makes them visible, the Good illuminates belief and helps in providing justification to the knower and this shows a connection between knowledge and virtue.
- The problem of knowledge during Plato's era is the need to overcome some challenges of skepticism.
- In the history of the ancient Greek philosophy the sophists who were Socrates' contemporaries were the first set of sceptics that challenged the existing criterion of knowledge
- **Theaetetus** defines knowledge as perception
- **Perception** can rightly give us the knowledge of taste, colour, odour and texture possess by objects
- The problem of perception as the source of knowledge is that the way object appears is relative to each perceiver
- Another reason proffered by **Socrates** against knowledge as perception is that it fails to incorporate the role of memory.
- Human memory will be useful if perception is knowledge
- **Socrates** believe that knowledge is the function of the human mind rather than the senses
- Theaetetus defined knowledge again as "***true judgement***"
- The position that reason alone without the aid of sense experience can furnish us with non-empirical and empirical knowledge of the external world is known as ***rationalism***
- Descartes, in his famous "meditation" believes that "whatever is as clear and distinct as the mind's consciousness of itself must be true".
- The term '**Cognito, ergo sum'** which is Latin for ' **I think, therefore I am'.**
- **Knowledge** is an objective endeavour while true opinion is subjective
- **Socrates** and **Theaetetus** agreed that knowledge is true opinion or true judgement plus account
- The traditional western epistemology took Socrates definition as the best when he defined knowledge as justified true belief or true belief plus account but which shows a regress problem
- **Foundationalism** basically concerns itself with the structure of justification
- Foundationalist assumed that knowledge building is like a house building, with structure, sub-structures and super-structures.

- The justification of non-basic belief with another will lead either to **infinite regress or circular regress**
- The **coherentism theory** holds that a belief is justified by the way it fits together with other beliefs within the same system
- **Susan Hack (1993**), propounded the **Foundherentism theory** which admits that each belief needs support (s)but denied that the support is only vertical as in coherentism or horizontal as in foundationalism
- **Truth** is the goal of knowledge.
- **Two form of truth** include: the truth of reason or what some call ***analytical truth*** and the truth of experience or what is also referred to as ***synthetic truth***
- **Plato** therefore contemplated this truth when the soul existed in it's purely spiritual condition in the world of ideas
- **Descartes** assert that intuition is clear and distinct ideas provide us with indubitable and infallible truth
- A **proposition** is true if it coheres with other truths already established in a system
- Sources of knowledge include: **perception, reason memory, testimony and introspection.**
- **Perception** is the awareness or apprehension of things by sight, to hearing, touch, smell and taste
- One crucial fact about **perception** is that it is concept dependent and the problem with perception is the tendency the senses have to leads us astray through interest, hallucination and illusion
- **Memory** is the store of the mind and also the recorder of all events and the attributes we encounter on a daily basis
- **Reason** is the capacity for consciously making sense of things, for establishing and verifying facts and changing or justifying practices, institution s and belief based on new or existing information. The concept of reason is sometimes referred to as intellect
- **Testimony** is known as a statements that are based on personal experience or personal knowledge which is transmitted to others
- The problem of knowledge vis-a-vis the problem of perception, definition and justification of knowledge was brought by **Sophists** who were the contemporaries of Socrates
- **Pyrrhonism** is a claIm about keeping mute
- The three skeptical argument according to Linda Zagzebski (2009), are ***closure of certainty argument, the evil genius closure argument and the regress argument***

CHAPTER 5

METAPHYSICS

- **Metaphysics** is one of the core branches of philosophy- ethics, epistemology and logic are the others.
- It answers such questions as to what is the ultimate problem of Being and Reality.
- The subject matter (the content) of the discipline has been attributed to **Aristotle**, but the name (the term 'metaphysics') did not originate from him.
- **Aristotle** originated the organisation of what constitutes metaphysics, but not its name.
- The introduction of the name 'metaphysics was by **mere accident**.
- **Aristotle** called the subject-matter that came to be known as metaphysics his first philosophy.
- In **70 BC** in Rome, **Andronicus of Rhodes** who was not a philosopher took it upon himself to edit the works of Aristotle.
- The subject-matter of physics deals with the physical things.
- The subjects of metaphysics were called '**the treaties after the physical treaties**'
- **Metaphysics** means 'over and beyond the physical'
- **Metaphysics** concerned itself more with abstract qualities than with a scientific observation and analysis of factual matters.
- **True metaphysics** are concerned as a '**science**' of causes.
- It is a study of first principles underlying reality.
- The first question the metaphysicians asked was, '**what is reality**?
- To answer this question, philosophers were divided into two major school of thoughts; Idealism and Materialism.
- **Idealism** holds that reality is mental or immaterial substance. Examples of philosophers who belong to this school are **Plato**, **Leibniz**, **Descartes** and **George Berkeley**.
- According to **Plato**, the true nature of things is **eternal**, **immutable**, **immaterial** and **invisible**.
- For **Leibniz**, the ultimate constitutive elements of the world are **immaterial**, **spiritual souls** or **monads**.
- **Rene Descartes** argues that reality consists of **material** and **immaterial substances**, but that the immaterial/spiritual/soul is **superior** to matter.
- **George Berkeley** on his own idealism, things in the world are ideas in the mind. The existence of anything depends on it being perceived.
- **Materialism** is the doctrine that tend to reduce all reality to matter. It is an antithesis of idealism.
- **Democritus of Ancient Greece** and **Gilbert Ryle** of modern times are materials.
- For **Democritus**, reality is all about matter, and the smallest indivisible unit of matter is **Atom**.

- **Realism** is a newly developing position that is yet to graduate to a school.
- **Some philosophers** believe that **Realism** is an inseparable mixture of mind and matter. **Immanuel** is one of those thinkers who hold this view.
- **The realist** urge us not to accept **the idealist** or **materialist** view point without qualification.
- **The next question** that agitated the minds of early philosophers was "in the acquisition of indubitable knowledge about reality, what is the most important tool?"
- An attempt to answer this question **led to two sub-schools** in **metaphysics** known as rationalism and empiricism.
- **Rationalism** is the belief that in order to capture what constitutes reality, reason alone is sufficient.
- It holds that all knowledge begins and ends with reason.
- **Examples of rationalist philosophers** are Plato, Rene Descartes and St. Augustine.
- **Empiricism** is the believe that all knowledge begin from sense experience.
- **According to this believe**, for us to acquire knowledge of an object, we have to perceive that object through our senses (Sight, hearing, smell, touch and taste)
- **Realism here**, attempts to meditate between rationalism and empiricism.
- **Cause and effect** (casualty) is the necessary connection of events in their series.
- It is the external connection between phenomena, in which whenever one exists, the other must follow, e.g. the heating of water is the cause of it's turning into steam.
- **The proposition** that all phenomena are casually conditioned, expresses the law of casualty. Philosophers who acknowledge this law and apply it to all phenomena are called determinists, while those who deny it are in determinists or libertarians.
- The view that for every effect there is a cause, means that, every human action (an effect) must have a cause. To be caused is to be determined.
- Since **human actions have causes**, human actions **are determined**. If human actions are determined, human actions are not free. Since human actions are not free, man is not a free moral agent; and if man is not a free moral agent, he should not be held responsible for his actions.
- **Determinism** can also mean pre-determinism, as when being determined by God.
- The **immediate implication of determinism** is that the doer of the action should not be held responsible for the action, since a force which he has no control over, is responsible for the action.
- **Libertarianism** is the view that man is totally free.
- It is the view that human actions are without causes.
- Another set of recurrent metaphysical problems are Universals and Particulars.
- **Universal** is a class name denoting many things, E.g, animal, woman.

- Particular is a class name denoting individual thing like Ajayi, Abiodun, Akomolafe.
- For the **Platonists**, universals are real entities which have their separate and independent existence from particular things.
- The **nomalists** reject the **Platonists** notion of universal, and holds universals to be nothing than labels to designate many different things that share common attributes.
- Another **metaphysical problem** is the proof of the existence of God.
- The proof of the existence of God can be approached under popular arguments, cosmological proofs, and ontological arguments.
- **Arguments raised** under popular arguments are, common consent, religious experience, arguments from sciences, moral argument, argument from teleology or design.
- The **arguments that exists from cosmological arguments are,** from motion, from efficient cause, from contingent and necessary being
- **Metaphysics** promotes rational thinking and wisdom essential to human life.
- It reinforces religious assertions and its method is logical.

CHAPTER 6

INTRODUCTION TO WESTERN SOCIO-POLITICAL PHILOSOPHY

- **POLITICAL PHILOSOPHY** is a timeless inquiry into the political life, ideas and thoughts of individuals, states and governments.
- **PHILOSOPHY** is coined from the Greek word (**PHILOSOPHIA**) which means love for wisdom.
- **PHILOSOPHY** is regarded as the critical reflection of ideas we live by.
- **PHILOSOPHY** is also seen as cosmological science which is concerned as the nature of reality, its essence and existence of man in the universe.
- **PHILOSOPHY** can be seen as an enterprise which reflects in virtually all issues but in a critical clear and rational, analytical, rigorous and systematic manner.
- **POLITICAL PHILOSOPHY** is an inquiry into the nature of politics.
- **POLITICAL PHILOSOPHY** is a normative enterprise.
- **POLITICAL PHILOSOPHY** is an endeavor to understand the nature of political life across human existence.
- **POLITICAL PHILOSOPHY** like all aspects of human existence is conditioned by environment and by the scope and limitations of individual thinking.
- **POLITICAL PHILOSOPHY** is therefore concerned about social relations generally and the interdependence between these relations.
- **POLITICAL PHILOSOPHY** is also required for clarification of concepts and beliefs for their justification or refutation.
- **POLITICAL PHILOSOPHY** is basically interested in answering basic questions such as the nature of the relationship which ought to exist between and individual and society , general questions about government like, why should individuals obey government?, why should government have political powers over the individuals? Broad questions about locus and sources of political power and ends of political power.
- **POLITICAL SCIENCE** is a social science which aims at recording and explaining individual political facts as instances of general laws.
- **POLITICAL SCIENCE** is concerned about the collection and descriptive explanation of political phenomena.
- **POLITICAL SCIENCE** involves empirical justification of fact which can either be proved or disproved.
- **POLITICAL SCIENCE** is a descriptive enterprise.

POLITICAL THEORIES AND PHILOSOPHERS

- **PLATO** was born in around **429BC** in Athens to a distinguished aristocratic but not to an affluent family.
- **PLATO'S** father's name was **ARISTON** and his mother is **PERICTIONE**.

- **PLATO** has a sister **POTONE**, two brothers, **ADEIMANTUS** and **GLUACON** and one half-brother **ANTIPHON**.
- **PLATO'S** real name was **ARISTOCLES**, which meant "the best and renowned".
- **PLATO'S** Name was derived from **PLATYS**, because of his broad and strong shoulders, good looks and charming disposition.
- **PLATO** excelled in in the study of poet and rhetoric.
- **PLATO** fought in three wars and won an award for bravery,
- **PLATO** never married.
- **PLATO** was a student of **SOCRATICS** whom he met at the age of 20 around **407BC**.
- In **386BC**, **PLATO** established his academy, which became a seat of higher learning and intellectual pursuit in **GREECE** for the next one hundred years.
- **PLATO** died in **347BC.**
- **PLATO** political philosophy is a blend of rigorous **SOCIAL NIHILISM** and **POLITICAL AFFIRMATION**.
- **PLATO'S** political ideology is well recorded in his famous book '**THE REPUBLIC**'.
- **PLATO** classifies the society into three classes of people. The first class '**ARTISANS**', second class '**AUXILIARIES**' and the third class '**THE GUARDIAN**'.
- **ARTISANS** provides the necessities of life and its material and economic foods and services. They include bricklayers, carpenters, farmers, traders and so on.
- **AUXILIARIES** are concerned with the welfare and security of the state. They include military personnel, administrators in the state services.
- **THE GUARDIANS** is the higher class who has the intelligence to rule. They are referred to as the **PHILOSOPHER KING.**
- **THE PHILOSOPHER KING** is distinguished by his intellectual and philosophical wisdom.
- **THE PHILOSOPHER KING** is to make laws and policies in the state.
- **PLATO** sees the political philosophy as **ARCHITECTONIC SCIENCE** of the society.
- **ARISTOTLE** lived between (**384-322BC**).
- **ARISTOTLE** was verses in a number of dispels such as aesthetics, biology, ethics, logic, physics, politics and psychology.
- **ARISTOTLE** combined teaching and research.
- Even till today, **ARISTOTLE** remains the starting point for any scholarly enquirer in political science.
- **ARISTOTLE** was a student of **PLATO.**

- **ARISTOTLE** famous work is '**THE POLITICS** (**POLITICSBKIII**). He emphasized on the issues concerning human behavior, political institutions, constitutions and factors of political instability.
- **PLATO** and **ARISTOTLE** we're credited as for-runners in the history of **WESTERN INTELLECTUAL TRADITION**.
- **PLATO** is identified as an idealist and radical while **ARISTOTLE** is regarded as a realist and a moderate.
- **ARISTOTLE** is further known as the father of political science.
- **ARISTOTLE** is also famous for his land breaking works like **NICOMACHEAN ETHICS**, **THE CONSTITUTION**, **POLITICS** and **THE EUDEMIAN ETHICS**.
- **ARISTOTLE** found a school in **3335BC** called **LYCEUM**.
- **ARISTOTLE's** political philosophy critically focused on **PLATO's** ideas.
- **ARISTOTLE** political idea conserves and preserves existing traditions and institutions unlike **PLATO's** radical reform in the republic.
- **ARISTOTLE** valued individual quality, privacy and liberty above social efficiency and power.
- **NICCOLO MACHIAVELLI** was born in Florence, Italy on May 3, **1469**.
- **NICCOLO MACHIAVELLI** was born at a time when Florence suffered a long period of civil strife, and political disorder.
- **NICCOLO MACHIAVELLI** was well vast in Latin and trained in Florence humanistic Studies.
- **HUMANISTIC STUDIES** in Florence valued the willing subordination of one's private interests for public good, the desire to fight against tyranny and corruption and the need to perform noble acts in order to attain glory.
- **MACHIAVELLI**, by his training, later became a very high ranking diplomat-military and administrative.
- **MACHIAVELLI** belonged to the **RENAISSANCE**.
- The **RENAISSANCE** signified a rebirth of the human spirit in the attainment of liberty, self-confidence and optimism.
- **MACHIAVELLI's** political thoughts are expressed in his famous book "The prince". Which was written in **1513**.

THE SOCIAL CONTRACT THEORISTS

- **THOMAS HOBBES** was born in England (**1588-1679**).
- **THOMAS HOBBES** Studies in Oxford University, where he was subjected mainly to logic and the philosophy of Aristotle.
- There are three important influences on **HOBBES THOUGHT**. **FIRSTLY**, he came across **GALILEO** and his writing influenced and provided the model for **HOBBES** philosophy. **SECONDLY**, he discovered **EUCLIDEAN GEOMETRY**

at age forty. **THIRDLY**, the **CIVIL WAR** in England also contributed immensely to **HOBBES** life.

- **THOMAS HOBBES** published **THE LEVIATHAN** in **1651**. His major aim was to react the study of physical nature, human nature, and human society.
- **JOHN LOCKE** was born in Somerset England (**1632-1704**).
- **JOHN LOCKE** Studies theology, natural science, philosophy and medicine in Oxford University. He was greatly influenced by Descant's writing.
- **JOHN LOCKE** Major works include, **TWO TREATIES OF GOVERNMENT AND CONCERNING HUMAN UNDERSTANDING**.
- **LOCKE's** political philosophy is the foundation of modern **LIBERTARIANISM**.
- **JEAN-JACQUES ROUSSEAU** (**1712-1778**); was a great French philosopher whose philosophy is highly personal, an expression of his own fierce insistence in independence and liberty.
- **ROUSSEAU** also wrote **THE SECOND DISCOURSE** also known as **THE DISCOURSE IN EQUALITY**.
- **ROUSSEAU** is also known for his dictum "**man is born free, but he is everywhere in chain**".
- **ROUSSEAU** described his political philosophy as the state of nature, a state of perfection where human kind lived in harmony and peace with himself and nature.
- **KARL MARX** (**1818-1883**), was a great critic in the western intellectual tradition.
- **KARL MARX** ideas exerted a decisive influence on all aspects of human endeavor, and transformed the study of history and society.
- **KARL MARX** ideas significantly changed anthropology, the arts, cultural theory and theory and sociology, history, law, literature, philosophy, political economy and political theory by establishing a link between economy and intellectual life.
- **MARX** brought a significant change to the entire methodology of the social sciences by developing a **THEORY of PRAXIS**, which is the unity of thought and action.
- **MARX** was also the first to bring together the various shares of socialist thought into both a coherent world view and an impassioned doctrine of struggle.
- **KARL MARX** was particularly against the way the capitalist industry treated the working classes.
- **MARX** wrote that the history of all existing societies has the history of class struggle (**BOURGEOISIE** and **PROTECTORATE**).
- **BOURGEOISIE** are the stronger economic power.
- **PROTECTORATE** are the weaker working class.
- **MARX** proposed an approach of political thought which studies the conflict between social classes materially.

- **MATERIALISM**, is the starting point for understanding the physical and economic basis for society.
- **JOHN RAWLS** (**1921-2002**) developed his philosophy from the philosophy of **HOBBES**, **LOCKE** and **ROUSSEAU**, and started a debate to shape political philosophy at the end of the twentieth century.
- In his famous work, **A THEORY OF JUSTICE**, **RAWLS** took the concept of the state of nature, a heuristic tool used by many philosophers in the seventeenth and centuries, and renamed it the '**ORIGINAL POSITION**'.
- **RAWLS** social contact visualize a society of equal men both in power, and morals and autonomous thereby making a co-operative venture of mutual advantage possible.
- **A THEORY OF JUSTICE** examines various issues such individual and minority rights, just and unjust wars, and issues of social justice in policy formations and execution.

CHAPTER 7
AN INTRODUCTION TO SOME PROBLEMS IN THE HISTORY OF PHILOSOPHY

- How history is to be written is a **problem** in the study of the history of philosophy.
- Another important problem that refuse to leave the history of philosophy is the question whether the historian of philosophy could be as neutral to the point of keeping his/her own philosophical account out of his or her historical presentation.
- The History of philosophy can be approached via the following **six** selected ways;
  a. The problem of the relevance of history of philosophy to the study of philosophy.
  b. The problem of the periodic influence of Western philosophy on the history of philosophy.
  c. The problem of whether the historico-cultural nature of the History of the philosophy.
  d. The problem of whether methodology is involved in writing history of philosophy?
  e. The problem of conceptual and thematic configurations in the history of philosophy.
  f. The problem of whether the historian of Philosophy could be regarded as a philosophy?

DEWEY;

- The attitude of the analytic philosopher to the history of philosophy is as a result of the burden of epistemic justification placed on history.
- History of philosophy is not negligible.
- A brief History of Western philosophy and its periodic influence on the study of history of philosophy.
- The history of Western philosophy is the ground from which the disciplinary history of philosophy sprouts.
- There are six classificatory periods in the history of Western philosophy includes;
  a. Ancient Greek philosophy
  b. Hellenistic philosophy
  c. Medieval philosophy
  d. Renaissance philosophy
  e. Modern philosophy and contemporary philosophy.
- Ancient Greek philosophy is divided into **two** conceptual periods;
  a. Pre-Socratics who is concerned themselves with cosmological problem.
  b. Socratics who shifted their philosophical questioning towards human life.

- Hellenistic philosophy is a dispersal of the thematic and conceptual formations in ancient Greek philosophy into the period which runs from the death of Alexander the great in **323BC** to the end of Roman republic.
- Stoics, Epicureans and the sceptics are three philosophical movement which took roots within the cultural and historical space of this period.
- Stoics derived the name from the **STOA** which was a public place of discourse.
- The stoics prided themselves on the coherence of their philosophy.
- Epicureanism grew rapidly in the Hellenistic world due to the needs of people for a sense of identity and moral guidance.
- Epicurus who founded Epicureanism was regarded as a '**saviour**' bringer of '**light**'.
- Epicurus philosophy also long argues further that it is a strange mixture of hardheaded empiricism, speculative metaphysis and rules for attainment of tranquil life.
- Medieval philosophy is generally accepted to the begun from the birth of Boethius to shortly.
- Renaissance philosophy is the rebirth of philosophy after its medieval sojourn.
- Renaissance philosophy is the ground from which most conceptual development.
- Modern philosophy is said to be the period when philosophy was severed from its relationship with religion.
- The modern period in the history of philosophy is divided into
- Rationalist and empiricist
- The rationalists are Descartes, Spinoza, and Leibniz.
- The empiricists are Berkley and Locke.
- Contemporary philosophy contains both modern and post - modern philosophy.
- Another raging problem in the history of philosophy is the problem which has to do with the cultural nature of the history of philosophy.
- A period eye development" is not only needed in writing the history of philosophy
- The cultural motifs is needed in writing the history of philosophy.
- The most perennial problem with which philosophers are usually confronted is the problem of methodology.
- The problem involved in thematic, conceptual and configurations of the history of philosophy is to be able: to streamline the themes with which philosophers are concerned and narrate a history of these philosophical themes.
- Philosophical themes range from freedom, truth, beauty love, and good to evil.
- Is the historian of philosophy a philosopher? Is yet another important problem that the historian of philosophy battle.

CHAPTER 8

BIOETHICS

- **BIOETHICS** is a coinage from two terms "**BIOLOGY**" and "**ETHICS**"
- **BIOLOGY** is the science of life of living things
- **ETHICS** is derived from the Greek word '**Ethos**' meaning **Character or custom**.
- **ETHICS** deals with the norms or standard of the human behaviour.
- **BIOETHICS** is defined as the application of the norms and standards of human behaviour to the study and application of biological research and administration often known as **BIOTECHNOLOGY**.
- **BIOETHICS** is an interdisciplinary field involving clinicians, lawyers, philosophers, theologians and other humanists. It came in the early 1970's
- **BIOETHICS** provides legal and ethical framework for resolving conflicts between physicians and patients and between social consensus and individual value.
- **BIOTECHNOLOGY** is any technique that utilizes living organisms (or part of organisms) to make or modify products, improve plants and animals or to develop microorganisms for specific purposes.
- **GENETICS** is the systematic description and study of hereditary mechanism in the various dimensions of transmission and variation. It is the science of hereditary.
- **GREGORY MENDEL** is the father of Genetics.
- **HEREDITARIANISM** is the belief that hereditary is a major determinant in human personality and socially important traits.
- **DNA** contains Nucleic Acid.
- Nucleic Acid contains Long polymer of Individual Molecules (Nucleotides).
- Nucleotides contains Nitrogenous base.
- Nitrogenous Base contains Sugar Molecule.
- Sugar Molecule contains Phosphate Molecule.
- Genetically modified foods are foods from genetically modified organisms (GMOs) specifically, genetically modified crops.
- There are two methods of Gene therapy which are: **Viral** and **Non-Viral** methods

CHAPTER 9

INTRODUCTION TO ISLAMIC PHILOSOPHY AND SOME MEDIEVAL MUSLIM PHILOSOPHERS

- The belief that God is omnipotent is total in the Islamic '**UMMAH COMMUNITY**'.
- The meaning of **Justice** in relation to **God** is that He is far removed from every vicious act and from being remiss of what is incumbent on Him.
- Justice in relation to man also depends on the knowledge of good and evil determined by reason and not necessarily by law or tradition.
- The **Ash'arites** in their opinion say that there is nothing in reason which can guide to a knowledge of good and evil but it is the **Shari'ah** which decides whether a thing in good or evil. The **Ash'arites** see lying as evil because it has been declared by God.
- The **Mu'tazilites** on the other hand see good as being in itself and evil as evil also in itself whether or not the **Shari'ah** makes them so or not.
- The Shiites as well as the **Mu'tazilities** hold that since the relationship between God and as well creatures is universal and equal, His guidance goes to all at the same time, without distinction, but, some are guided while others refused to be guided.
- The **Mu'tazilities** view of the freedom of man and his ability was intended to relieve God of the responsibility for the evil deeds of man consequently to safeguard His justice, hence they just like the Shi'ites hold that man having been endowed with power is the creator of the deeds both good and evil.
- In the **opinion** of **orthodox theologians**, God is the king of the creation, doing what He wishes and judging as He wishes.
- Islamic Philosophers and their Philosophy.

1. **Al-Kindi (801-873 CE)**
    - *He is generally regarded as the first Muslim philosopher and an Arab Muslim to study science and philosophy.*
    - *He classified philosophy into two broad divisions: first, theoretical studies which comprise of physics, mathematics and metaphysics and, second, practical studies which comprise ethics, economics and politics.*
    - *His value as a philosopher lies in the fact that his philosophy was the first bold attempt to effect an accord or harmony between religion and philosophy.*
2. **Al- Farabi 870-950 CE**
    - *He was also one of the most outstanding and renowned medieval Muslim philosophers.*
    - *He is known as the 'Second Master' (after Aristotle), and the first Muslim Philosopher "who sought to comfort, to relate and as far as possible to harmonize classical political philosophy with Islam", and to make it intelligible within the orbit of the revealed religion.*
    - *He holds that God is necessary by Himself, Hence, he is not in need of another for His existence or His subsistence.*

- *He developed classification of political regimes which are.*

  *a. **Virtous City:** where purposes of the government are geared towards attainment of the true happiness as ordained by God. It is divided into three, namely:*

  i. The wise and the philosophers

  ii. The followers of the first class

  a. The reset segments e.g. farmers, traders, security officers, e.t.c.

  *b. **Ignorant City:** where government is not aware of the nature of true happiness*

  *c. **Erring city:** where all organs of the government have been prevented and corrupted*

3. **Ibn- Sina (980-1037)**
   - *He is known to Western Europe as Avicenna.*
   - *According to Him, the first certitude apprehended to human mind is that of being which is apprehended by means of sense perception.*
   - *The second certitude is that the being apprehended in man and every existing thing is not present there of necessity.*
   - *To him, the only being is in God, God is no genus and being is not a genus.*
   - *He believed in the immortality of soul that corruption cannot touch it for it is material.*

Other Islam philosophers include:

4. **Ibn- Tufayl and,**
5. **Ibn- Rushd (Averroes, 1126-1198 CE)**

CHAPTER 10

SELECTED WORLD RELIGIONS IN CONSIDERATION: AN OVERVIEW

- Religion means different thing to different people. There are so many religions in the world, but for the purpose of this paper, six have been selected. They are; **Hinduism, Buddhism, Judaism, African Traditional Religion, Islam, and Christianity**. Three of these, **African Religion, Islam, and Christianity** are officially recognized and practiced in Nigeria alone.

CONCEPT OF RELIGION AS A DISCIPLINE:

- **Halls (1972),** the term religious conveys many things to many people and as much, it cannot be exhaustively defined.
- **Carpenters** defines religion as the "whole group, of rites performed in honor of the divine being".
- **Max Muller** is of the view that "Religion is the perception of the infinite".
- **Emanuel Kant** sees religion as the "recognition of our duties as divine commands".
- **William James** says that "religion means the feelings, act and experiences of the individual men in their solitude so far as they apprehend themselves to stand in relation to whatever they may consider the divine".
- **Herbert Spencer**, religion is a feeling of wonder in the presence of the unknown".
- **To the Rationalists,** religions are results rational effort to understand basic questions and existence.
- **Oguntola Laguda (2004),** alludes to the fact that religions do not only exist as rallying point for societal unity but also a man's attempt to rationalize natural phenomena

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HINDUISM:

- It is a religion practiced according to **Mir Mohammed Ibrahim** by 500 millions of people living in the vast subcontinent of Indian. Their original home that is the **Aryans** was the vast plain stretching from Eastern Europe to Turkistan. They entered India through the **Khyber Pass**.
- **Hinduism** is heard from ***Rihis*** **wise men** who lived in the early periods in history. The primitive Aryans religion have been **Totemism, fetishism, animism and magic and worship of natural thing**.
- The Scripture called **'the Vedas'** was compiled according to a source around **1500BC** which is known as **Vedic period**.
- The Supreme soul and spirit is called ***Brahman*****.**
- The Vedas comprises of four collections, namely**; the Samhitas, the Brahmanas, the Aranyakas, and the Upanishads.**
- Many Hindus believe in the doctrine of **Tamasukh** (transmigration of soul).
- There is no provision for conversion **(Shuddim)** in Hindus religion.

BUDDHISM:

- The founder of this religion was **Buddha** (one who has waken-up but often translated the Enlightened).
- There is no consensus regarding his date of birth, for while a source quotes **484-404BCE** another source cites **566-486BCE** in a village called **Lumbini.**
- His real name was **Sidhartha Gautama**, meaning **"the completions of purpose"** and his other names include: **Shakya-muni or Sage of Shakya and Tathagata** i.e. 'one who ha won the truth'.
- At age **nineteen or probably sixteen,** he married his cousin **Yasodhara**, and had a son ten years later named **Rahula** "the fetter"
- He received a revelation which became the core of a new religion. He revealed the messages, his message consists in the four (4) truths which are;
- **An old man: the fact of old age, a body racked with disease: the fact of illness, a corpse: the fact of death, and a monk with a shaven head: the fact of withdrawal from the world**.
- The basic ideology or philosophical doctrines of Buddhism is **Avidya** (Ignorance).
- It is believed by Buddha that the main root of **Trishma** (world desires) is ignorance and thus concludes this could be overcome via 'The Eightfold Noble Path' which are path of: Right Doctrine, Right Purpose, Right Discourse, Right Behaviour, Right Purity, Right Thought, Right Lowliness and Right Rapture.

JUDAISM:

- Its root lies deeply in the **Old Testament** more particularly in the **Pentateuch**. It is mistake to regard **Moses** as the founder of Judaism.
- Judaism knows of no other founder but **God**.
- The following are one of the Jewish practices:

a. **Prayer:** the principal prayer at all services is the Amidah, made up
b. **The Sabbath:** it is a holy day that services are held in memory of the creation, as well as the Exodus. On this day, devout Jews must abstain from all kinds of works, labour or business.
c. **The Festivals:** three feasts are usually observed by the Jews three times a year. The feasts are; the Passover, the Pentecost, and the Tabernacles **Jewish scriptures**

- **Torah:** this are the five books of Moses or the Pentateuch.it consist of Genesis, Exodus, Leviticus, Numbers and Deuteronomy.
- **Neviim:** starting from Joshua through the Major Prophets, Isiah, Jeremiah, and Ezekiel.
- **Ketuvim:** starting with the poetic works: Psalms, Proverbs, Job, the Song of Songs and lamentations.
- **The Talmud:** it is the written summary, with later commentaries and explanations of that oral law, compiled by Rabbies from the second century C.E. Into the middle ages.

AFRICAN TRADITIONAL RELIGION:

- This is the religion of the African. No organized written scripture like Islam and Christianity, but solely relies on oral tradition for its survival and transmission.

ISLAM:

- It is an Arabic word derived from three syllables: **sin-lam-mim** and when the vowel Fatihah is applied to these syllables, it becomes **sa-la-ma**. The word could be traced to the verb **Aslama** which means **"to submit", "to obey", "and to surrender".** It, therefore, means **"to submit or surrender oneself to the will of Allah".**
- Islam is the name given to the religion preached and propagated by an unlettered **prophet Muhammad (S.A.W), an Arab born in makkah in 570 C.E**. It is considered as one of the world's largest religions has large Muslim communities in the Africa, Asia, Middle East, North Africa, Pakistan, etc.
- **Makkah and madina** are the sacred cities of Islam otherwise known as **Haramayn.**
- The religion emphasizes virtues of **right (Ma'ruf)** and **wrong (Munkar).**

THE QUR'AN:

- This is the Sacred Book of Islam, divided into **114 Surahs or chapters** and over **6,200 verses** according to a sources. It was revealed in the **month of Ramadan** and given to **Muhammad (SAW)** in peace meal by **Angel Jibril (Gabriel).**
- **The Hadith** is known as the traditions of the Prophets, containing actions, sayings tacit approval of the Prophet.
- Islam is constructed on **five pillars/principles**, known as **Arkanu'l-Islam**. These are;
- **Shahaddah or the Confession of Faith, As-Salat-Canonical Prayer, Az-Zakat- Alms Giving, As-Sawm- fasting in the month of Ramadan , and Hajj-Pilgrimages to Makkah and Madinah**
- **The articles of faith** otherwise known as **Qawa'idu'l-Islam** are six in number, they are;
- **Al-Iman bi'l-Lah - Belief in Allah, Al-Iman bi'l-Mala'ikah - Belief In Angels, Al-Iman bi'l-Kutub- Belief in Holy Scriptures/Books, Al-Iman bi'l-Rusul-Belief in Messengers, Al-Iman bi'l-Yawmul'Akhir- Belief in the Last Day, and Al-Iman bi'l-Qadar - Belief in Predestination**

THE MOSQUE:

- This is the Muslim place of worship and considered as the most important building in Islam. The Imam is the Chief Officer in charge of the mosque and his main duty is to lead the people in prayers.
- **On Fridays**, Muslims attend prayers at the Central mosque where they listen to **Sermon (Khutbah)** and observe **two Rakaat** prayers in congregation.

CHRISTIANITY:

- Jesus Christ found Christianity. This religion believes very strongly in **God as the Father Almighty, Jesus Christ as the saviour of mankind, the Holy Spirit as the Sanctifier of mankind, the immaculate conception of Jesus Christ and the death and resurrection of Jesus Christ.**

THE BIBLE:

- This is the basic scripture of the Christians. It has **two sections**, the **Old Testament** and the **New Testament.**
- **The Old Testament has 39 books**, divided as follows; **the Pentateuch, or the book of the law, or the Torah, The Prophets (Major and Minor Prophets), and the writings.**
- **The New Testament has 27 books**, falling naturally into **two sections**. They are;

1. The Gospel (Mathew, Mark, Like, and John).
2. The Letters or Epistles.

CHAPTER 11

THE BASIC SCIENCES: ATOMS, MOLECULUS AND COMPOUNDS

- Science comes from a **Latin** word **Scientia** meaning **knowledge**.
- In chemistry, **observation** is the answer nature gives to a specific question.
- The goal of chemical science is to discover the **fundamental regularities.**
- The primary activity of science is **observation.**
- When taking observations, recordings must be **precise or accurate** as possible.
- **Laws** reflect the conviction of what the scientists believes or observes.
- **Democritus** envisioned atom to be a small indivisible particles as the constituents of matter.
- **John Dalton** predicted that atom might have different characteristic weight.
- **John Dalton** postulated the **Atomic theory.**
- **First Theory:** Atom is the smallest indiviscible particle of an element.
- **Second Theory:** Atom of the same element are alike and different from atoms of other element.
- **Third Theory:** In ordinary chemical reaction, no atom of an element disappears or changes to another element.
- **Fourth Theory:** Compound substances are formed when atoms of more than one element combine.
- **J J Thompson** discovered electrons and the charge to mass ratio of electrons.
- **Rutherford** discovered protons and atomic nucleus.
- **James Chadwick** discovered neutrons.
- **Niel bohr** proposed electrons to be in a circular moving orbit.
- The subatomic particles of atom for all elements are **protons, neutrons and electrons.**
- **Electrons** are **not** found in the nucleus of an atom.
- **Atomic number {Z}** is the number of proton in the nucleus of an atom.
- **Mass number {A}** is the sum of proton and neutron number.
- Charge of an electron is called **Ion.**
- Overall negatively charged electron is called **Anion.**
- Overall positively charged electron is called **Cation.**
- Energy required to remove an electron from an atom to form cation is called **Ionization Potential / Energy.**
- **J J Thompson** discovered isotopes.
- **Isotopes** are atoms of the same elements with different masses, due to differences in neutron number.
- The smallest part of an element which can exist alone under certain condition is called **Molecules.**
- **Compounds** are formed between two or more atoms of different elements e.g. H-CLCL-CL, N-N, are regarded as **Diatomic molecules.**

CHAPTER 12

MAN, HEALTH AND DISEASES

- **Homospecific associations** involve members of the same specie e.g. herds, colonies and flocks etc.
- **Heterospecific associations** are of particular interest because they involve members of different species
- Heterospecific associations in which animals are literally living together are collectively known as **symbiosis**, the study of this phenomenon is known as **Symbiology**
- **Commensalism** is an association between two organisms where one specie benefits (the commensal) and the other species is unaffected.
- **Mutualism** is a symbiotic association in which both organism involved benefit **Example is an alga and a fungus are united to form an organism known as Lichen.**
- **Parasitism**: here, a parasite (a smaller organism) is metabolically dependent on the large one known as the host.
- Health is defined by the World Health Organisation as a state **of complete physical, mental and social wellbeing** and not merely absence of disease or infirmity.
- **WHO** was delegated the responsibility of notification of epidemic diseases, consultative service, standardization of biological and drugs, health education as well as training and research in the field of infections and epidemic diseases.
- **Diseases** are caused as a result of damage done to the body by parasites with specific symptoms.
- **Epidemiology** is the body of knowledge concerning diseases in human population or communities rather than in the individual.
- **Endemic** is the disease in the human population maintains a relatively steady and moderate level. If the prevalence is high is called Hyper - Endemic.
- **Epidemic** is the sharp rise the incidence, or an outbreak of considerable intensity occurs.
- If the disease appears only occasionally in the one or at most a few members of the community, it is reported as a **SPORADIC**
- The term referring to the knowledge of the frequency of disease in animal communities is **EPIZOOTIOLOGY**.
- The following are sources of exposure to infection or infestation**: contaminated soil or water, food containing immature infective stage of the parasite, a blood sucking insect, a domestic or wild animal harbouring the parasite and one's self.**
- Soil polluted with human excrete is commonly responsible for exposure to infection with **Ascari lubricoides, Trichuris, Trichuria**, human hookworm.
- Water may contain viable cysts of parasite amoebae e.g. ***ENTAMOEBA HISTOLYTICAL*****, intestinal flagellates e.g. *GIARDIA LAMBA*, *TAENIA SOLIUM* EGGS.**

- Fresh water fishes constitute the source for the fish tapeworm (***diphyllobothriumlactum***), as well as several types of intestinal lives flukes, crabs and crayfishes for oriental lung fluke.
- A blood sucking arthropods transmit **malaria parasites, trypanosomes, filariasis worms, virus, rickettesias, bacteria and spirochetes.**
- The most common route of invasion is through the **MOUTH**.
- Droplet Spread is the spread of pathogens of the **respiratory membranes and mouth**, in droplet of mucus and saliva.
- **Measles and chickenpox** may be spread by means of these droplets.
- **FOMITES** is simply an inanimate object such as handkerchiefs, clothing, bedding, surgical dressings etc. contaminated by pathogens
- **Pathogens** are disease causing organisms and can be encountered in secretions, blood, skin flakes, faeces and others.

CHAPTER 13

MAN, HEALTH AND DISEASES REVISITED

- **Health** is the state of complete physical, mental and social well-being
- **Disease** is a disorder or malfunction of the mind or body, which leads to a departure from good health.
- **Chronic disease** is long term e.g. Tuberculosis.
- **Acute disease come** on rapidly, and are accompanied by distinct symptoms that require urgent or short-term care, and get better once they are treated.
- **Physical disease** results from permanent or temporary damage to the body.
- Organisms that cause disease inside the human body are called **Pathogens**
- **Bacteria and Viruses** are the best known pathogens.
- **Infectious diseases or Communicable diseases** are diseases in which pathogens can be passed from one person to another.
- **Influenza** is a virus which causes a severe form of respiratory tract infection with generalized bodily symptoms.
- Influenza is caused by a **virus** which attacks our body cells resulting in various manifestations depending on the strain of virus.
- **Water or food borne diseases include Salmonella, Cholera and Typhoid**
- **Salmonellosis** is an infection with a bacterial called **Salmonella,** it develops diarrhoea, fever and abdominal cramps 12-72 hours after infection and usually lasts 4-7days.Most persons recover without treatment.
- **Cholera** is an acute diarrheal illness caused by infection of the intestine with the bacterium ***Vibrio cholera.***
- **Typhoid** fever is contracted when people eat food or drink that has been infected with ***Salmonella typhi.***
- **Gonorrhoea** is caused by bacteria and can affect the vagina, cervix, urethra, rectum or even the throat.
- **Syphilis** is caused by the bacteria called ***Treponema pallidum*** which is spread mainly by **sexual** intercourse but can be passed on to babies by pregnant mothers.
- **Clinical tetanus** are spores deposited in tissue.
- **Malaria** is spread by mosquitoes, transfusions and shared hypodermic needles.
- **Non infectious** diseases are not caused by pathogens e.g. mental diseases, Creutzfelt-Jacob disease (CJD) which is as a result of destroyed brain tissue resulting in spongy appearance.
- **CJD** includes Genetic CJD, Iatrogenic CJD, Sporadic CJD and Varianct CJD
- **Schizophrenia** is a psychiatric diagnosis denoting a persistent, often chronic, mental illness characterized by abnormal perception, thinking, behavior and emotion, often marked by delusions.
- **Deficiency diseases** are diseases associated with malnutrition e.g. **Scurvy, Rickets** and **Night blindness.**
- **Scurvy** is caused by lack of **vitamin C**, **Night blindness** is as a result of lack of vitamin A, Rickets (relating to bone) by lack of vitamin D.

- **Degenerative diseases** are usually associated with ageing, it is a gradual loss in one or several organs or tissues.
- Degenerative diseases include diseases that occurs in **Skeletal, muscle and nervous system** e.g. muscular dystrophy and multiple sclerosis.
- Degenerative diseases also include those that occur in cardiovascular e.g. coronary heart disease and stroke cancers.
- **Muscular dystrophy** describes genetic disorder of the muscles, it causes the muscles to become very weak, the muscles break down and are replaced with fatty deposits over time.
- The most common type of muscular dystrophy is called **Duchenne's muscular dystrophy (DMD)** and usually affects only makes.

CHAPTER 14

NUTRIENTS: THE IMPORTANT VEHICLE IN HUMAN BIOCHEMISTRY AND PHYSIOLOGY

- Much of the world's population still suffers from **Malnutrition:** Under nutrition, over nutrition and Micronutrient deficiency (**hidden hunger**).
- Factors affecting food supply: Overpopulation, Poor economy, human conflicts, natural disaster, and climate change.
- Excessive consumption of fats, carbohydrate and processed food leads to: Obesity, diabetes, cancer, cardiovascular diseases.
- A condition where both over and under supply of nutrients coexist is **DOUBLE BURDEN OF MALNUTRITION.**
- Adequate diet is essential for both physical and mental well-being of humans.
- **Nutrients** is a source of nourishment needed to keep living things alive and grow. The process is **Nutrition.**
- The kind of food and drink consumed in a more or less regular basis is **DIET.**
- **Food** is ingested substance capable of being assimilated and utilized for supporting: Growth, Maintaining body functions, Repairing cells and tissues, Satisfying energy requirement of man.
- Food supplies the body with:
  - **Essential** and **non-essential** nutrient. Essentials include Protein, Fat, Carbohydrate, Vitamins, Minerals, Water. Non-essential are cholesterol, non-essential fatty acid.
  - Non nutrients which are **Endogenous** and **Exogenous.** Endogenous non nutrients are natural colours, flavoring. Exogenous non nutrients are food additives like colouring and flavorings.
  - Provides **Toxicants** which are Endogenous and Exogenous. Endogenous Toxicants are anti-nutrients like tannins, oxalate. Exogenous Toxicants are Biological (aflatoxins) and Chemical (heavy metals, pesticide residue).
- Food intake -> nutrient released by digestion -> absorbed into blood to the small intestine -> transporter to the required site -> non-absorbed nutrient excreted via the large intestine -> eliminated as feces.
- **Growth** is the increase in number and size of cells in the organs of the body, occurring in 3 phases:
  d. Phase 1: Rapid cell multiplication (cell number increases)
  e. Phase 2: Cell multiplication is slow, increase in cell size.
  f. Phase 3: Increase in cell size only.
- Multiplication phase (critical phase) can be affected by malnutrition.
- **Carbohydrates** (energy giving nutrients): provide energy, induction of bone calcification, healing of wounds, prevention of heart related diseases. E.g. rice, maize, millet, tubers like cassava, yam, banana, plantain fruits carrot, honey, sugarcane. Sugar (100% carbohydrate), cassava (84.2%).
- Carbohydrates can be classified based on **complexity** and **digestibility.**
- **Complexity include**:
  - **Monosaccharide**: simple sugar (glucose, fructose, galactose, and mannose) sweet taste, easily dissolved in water.
  - **Oligosaccharide**: 2-20 sugar units. Most common are disaccharide with 2 sugar units (sucrose, maltose, lactose) sweet, readily soluble in water.
  - **Polysaccharide**: more than 20 sugar units (starch, glycogen, cellulose).

- Digestibility include:
  - **Available carbohydrate**: are absorbable and nutritionally utilizable: glucose, fructose, starch (storage form in plants), glycogen (storage form in animals). They serve as source of energy
  - **Unavailable carbohydrate**: are dietary fibres or roughage, cannot be hydrolyzed by digestive enzymes e.g. pectin, cellulose, hemicellulose, login, gums. They help with movement of bowels, prevent heart diseases.
- **Lipids** are insoluble in water but soluble in organic solvent. Solid lipid of animal origin (**fat**) or liquid of plant origin (**oil**). Various bases for the classification but simplest for is based on the ability to form soap.
  - **Saponifiable (form soap)**: fatty acid, triacylglycerol, phosphovlycerol, sphingolipids, waxes.
  - **Non saponifiable (cannot form soap)**: sterols and steroids (cholesterol, sex hormones), terpenes (retinol, beta-carotene), prostaglandins.
- Roles of lipids include: **Storage -** lipids are stored in adipose tissue and made available during starvation and strenuous exercise. **Metabolic-** control vitamins, hormones, detergents, antioxidants. **Structural-** long fatty acids in animal and vegetables, extra-long in fishes. Fatty acids in foods are usually saturated, unsaturated (**essential fatty acid**) are oleic, linoleic, and arachidonic cannot be synthesized by the body. They are required for the synthesis of bile and prostaglandins.
  Groundnut (50.9%) of lipid, Fish (2-10%), chicken (6.5%).
- **Dietary source:** Eggs, dairy products, palm kernel oil rich in saturated fats and also cholesterol except palm kernels oil. Vegetable sources and some vegetables are rich in monounsaturated and polyunsaturated fats. Excessive consumption of saturated lipids and cholesterol is dangerous to the health. High cholesterol indicates atherosclerosis and stroke. Egg yolk (30,000mg/100g cholesterol level) whole egg (500), fish (70).
- **Proteins:** complex nitrogenous organic compounds in plant and animal food, made up of **amino acids** joined together by pepetide bond. 20 common amino acids in nature: **8 are essential, 12 are non-essential.**
- Essential proteins for adults are 8, the body cannot synthesize them; leucine, isoleucine, lysine, methionine, valine, threonine, tryptophan and phenylalanine. The other 12 are non-essential. In children in addition to the 8 earlier, histidine and arginine are essential for growing.
- Protein is important for growth in terms of:
  - Building and maintenance of body tissues.
  - Synthesis of vital biomolecules like antibodies.
  - Control of osmotic balance.
  - Energy production.
- Animal protein contain allamibi acids while plant proteins lack one or more essential amino acids. Plants foods can be combined in diet for maximum supply of amino acids.
- **Kwashiorkor:** protein deficiency, occurs in children under 5. Symptoms include: edema, retarded growth, low weight for age, wasting of muscles.
- **Vitamins** are essential as the body cannot synthesize them in sufficient amount relies on Exogenous source. They are divided into two: **Fat soluble (**Vitamin A, D, E, and K) and **Water soluble (**vitamin B complex, C).

Vitamin	Human Deficiency	Food source
A(retinol)	Night blindness, disorder of mucous	Liver, egg yolk, milk
D (calciferol)	Ricketts, osteomalacia	Cheese, butter, fish
E(alpha-tocopherol)	Reproductive failure, muscular dystrophy	Vegetable oil, greens
K(phylloquinone)	Blood clotting failure	Greena
B12(cyanocobalamin)	Pernicious Anemia	Liver
C(ascorbic acid)	Scurvy	Pineapple, pawpaw, potatoes

- **Minerals:** inorganic constituents divided into **macromineral (**N,Ca, Cl, Mg, P, K, Na, S) and **micromineral** (are in trace amounts: Co, Cr, Cu, Fe, Mn, An, Fluoride, iodine). Minerals are required for the maintenance of body system, formation of hemoglobin, antioxidants.
- **Water:** is a universal solvent used for digestion, transport of nutrients to tissues, maintain constant body temp, lubricant in joints, eye socket, Average of 8-19 cups (2L) of water should be taken daily to replish loss through diarrhea, vomiting, sweat.
- **Nutritional needs**: is influenced by age, sex, health status. Energy gym needed by an individual depends on the amount of energy used (**energy expenditure).** The expenditure depends of **Basal Metabolic Rate (BMR)**
- The amount of protein needed to maintain nitrogen balance (when N intake is equal to excreted) is known as **Protein requirement.** It is influenced by body size, quality of protein, calorie intake, previous state of nutrition efficiency of digestion and special physiological needs like: growth, pregnancy, lactation, recovery from illness.
- Dietary protein quality affects the reproductive performance of hens. The availability of carbohydrate as a source of energy spares protein from being used for energy.

- **Nutritional needs of different ages:**
  - **Infants**: adequate calories and essential nutrients for growth (from breast milk). The milk contains oligosaccharide, high quality proteins, enzymes, **colostrum** (Bruges immunological gap in new born, protects their GIT)
  - Nutritional status of a **pregnant or lactating mother** influences that of fetus or baby. Maternal nutrition if deficient affects brain weight, cholesterol, growth...of the baby.
  - At the **adolescent** stage there is increased energy need. Boys having higher need than girls of the same age. Also height requirements for protein.
  - For the **aged** it is partly influenced by their **biochemical status.** There is a gradual cumulative decline in metabolic control, loss in efficiency of mechanisms of body control associated with increased risk in disability, diseases, and rise in blood pressure. There need include reduction in caloric and saturated fat intake, increased high quality protein and complex carbohydrate intake, vitamins and minerals with fibre rich food.

- The nutrient need in a **diseased state** is important to hasten recovery of patients to help build body tissues, supply fibre with few calories. Obese people need to avoid **calorie dense** food but need food high in water content and fibre. For **HIV/AIDS** patient's good nutrition is recommended to strengthen immune system. Vitamins A, E, B_6, B_{12}, Fe and Zn to build immunity.

➢ **Availability of nutrients in the body:**

- Nutrients are made available in the body after digestion and absorbed by different organs of need. Availability of nutrients is affected by cooking. In cowpea, protein content increased with cooking. Excessive processing of vegetables may lead to loss of vitamins and minerals
- It can be concluded that nourishment is essential for maintaining well-being and good quality of life which can achieved by consumption of adequate diet.
- The essential nutrients in diet have to be carefully handed during processing to ensure optimal availability to the in the body.
- Nutrition is the foundation for healthy and productive life of an individual and ultimately the development of a nation.

CHAPTER 15

INTRODUCTION TO BIOSAFETY AND BIOSECURITY

The WHO has recognized that biosafety is of global and international importance.

- **Biosafety:** gotten from Bio + safety. Biology us the study of different aspects of living things. Safety is described as keeping away from harm. Biosafety literally means keeping of life harmless or away from hazards.
- **Biosecurity** refers to containment measures deployed to keep biological materials important for human, animal and environmental health from theft or misuse.
- Biosafety according to CDC of the USA is **"**the discipline addressing the safe handling and containment of infectious microorganisms and hazardous biological materials**".**
- It includes different aspects of zoonosis (diseases transmitted to man from animals) include Rabies (bats and dogs), Ebola virus (bats and humans), Lassa from rats, Cryptosporidiosis from cats, Novel Corona Virus nCOV.
- COVID-19 acronym for Corona Virus Disease of 2019.
- Common disease like Malaria, Dengue fever, common cold are inclusive in the disease.
- The disease are vectored by pets, wild animal, insects and other vehicles of transmission
- When exposed to pathogen carriers, humans infected to man.
- Interactions with these source of transmission is referred to as **safe handling** which goes a in ensuring biosafety of the organisms.
- Handling us carried out by laboratories, research and clinical diagnosis.
- **Infectious microorganisms** are pathogens hence disease causing agents. Organisms may be bacteria, virus and fungi.
- Hazardous biological materials are infected parts of body, waste products from infected organisms. Bio safety is a discipline.
- Laboratory biosafety is the containment principles, technologies and practices implemented to prevent unintentional exposure to pathogens and toxins or thier unintentional release.
- Environmental biosafety: is a concept that refers to the need to protect han health and environment from possible adverse effects of products of modern biotechnology.
- Nigeria has enacted a law on biosafety known as **National Biosafety Management Act of 2015.**

Important Definitions:

- **ALMO** is any living organism having a novel combination of genetic material obtained through the use of modern biotechnology.
- A **living organism** is any biological entity that can transfer or replicate genetic material. These include sterile organisms and viruses.
- **Modern biotechnology** means the application of the following:
    - In vitro nucleic acid techniques including recombinant DNA and direct object of nucleic acid into cells or organelles.
    - Fusion of cells beyond the taxonomic family.

- **Biosafety** is concerned with the health of humans, animals and the sustainable use of biological resources of the environment. This Biosafety is about keeping humans, animals and other organisms free from harm and leaving a safe future for upcoming generations.

CHAPTER 16

ENVIRONMENTAL POLLUTION

- An organism's **environment** is the complexity of physical, chemical and biotic factors that act on it, which determine its form and survival.
- **Environment** can be divided into three major components, the biosphere, the hydrosphere and the atmosphere.
- The **biosphere** is the region of the earth's surface occupied by living organisms.
- The **hydrosphere** includes all the water on the earth surface.
- The **atmosphere** is the layers of gases surrounding the earth's surface.
- **Environmental pollution** can be defined as the contamination of the physical and biological components of the earth's system to such an extent that normal environmental processes are adversely affected.
- **Toxicants or Toxic substances** are any hazardous or dangerous substances in the environment.
- Toxicants or Toxic substances can be naturally occurring or man-made (Xenobiotics).
- Pollution of the environment by chemical substances can be classified based on properties or structure of the substances e.g. Metals and their compounds, Toxic micro-elements.
- Environmental pollution threat of chemical substances increases if the substance are **POP.**
- **POP** means Persistent organic pollutants, they remain in the environment for a long period of time.
- **POP** can be released from sources such as destruction of the products used in households or by use of pesticides or other plants protection chemicals or during production of industrial chemicals e.g. DDT, Dioxins, Polychlorinated biphenyls etc.
- Environmental pollution can be grouped into five (5) major categories which include Air, Water, Soil, Noise and Nuclear energy.
- Other types of environmental pollution include Thermal, Light, Marine and Plastic pollution.
- Air is one of the essential factors that makes it possible for living things to survive on earth.
- An average sized human being consumes as much as 12 cubic meters of air daily, so harmful substances in the air may have an adverse effect on their health.
- **Air pollution** can be defined as the alteration of air quality with chemicals, biological, physical substances at concentrations, durations and frequencies capable of having effect on the health of living organisms and the environment.
- Air pollution affects humans, animals, crops, cities, forests and aquatic ecosystems.
- Pollution of air can be **Indoor or Outdoor.**
- Indoor air pollution occurs in human living environment such as room and workplaces, Outdoor occurs in industries.

- Air pollutants are Carbon monoxide, Ozone, Nitrogen dioxide, Sulphur dioxide, Lead and particulate matters.
- Air pollutants can be categorized based on their sources into **Natural and Anthropogenic air pollutants.**
- **Noise pollution** is defined as unwanted sounds that disrupt normal sound in the environment and it's also known as **Environmental Noise Pollution**
- Sources of noise pollution can be categorized into **Internal and External** sources.
- External sources are the major sources and they are difficult to control e.g Public address systems, industrial machineries etc.
- Internal sources are generated from household activities.
- More than 70% of the total earth's surface is covered by water.
- **Water pollution** is the introduction of harmful substances such as chemicals and microorganisms into lakes, rivers, ocean and other bodies if water in high proportion.
- It can come in **Inorganic or Organic, Physical, Physiological and Biological ways.**
- Sources of water pollution can be **Point and Non Point,** point comes from one source and non-point comes from different sources.
- Water pollution results into Typhoid, Cholera, Hepatitis and various other diseases.
- **Soil pollution** is the introduction of foreign substances into the soil to a level that it becomes dangerous or inhabitable to the inhabitants and users of the soil.
- Soil pollution causes ecological imbalance, reduced soil fertility and nitrogen fixation, reduced plant growth and increase erodibility.
- Environmental pollutions can be controlled by **Bioremediation, Phytoremediation, Entire mediation, Regulating noise levels, Installing waste treatment plants, Proper disposal of radioactive waste materials** etc.

CHAPTER 17

THE ECONOMIC ARCHITECTURE OF DEVELOPMENT PLANING IN NIGERIA: A GOVERNANCE PERSPECTIVE.

- The focus of this chapter is to critically analyse the economic architecture of development planning dynamics that have shaped the development process in Nigeria since independence.
- **Adeyemi (2011),** defined development planning as a conscious and deliberate effort to organize the use of resources to achieve specific objectives such as digit inflation, sustainable economic growth, among others, within the constraint of limited recourses.
- **Ajakaiye (2014),** also defined development planning as a conscious effort by the central organization to influence the function of an economic system in ways that it will move from the current state to the desired state.
- The focus planning is to put an economy back on the part of self-sustaining, equitable, inclusive and balance growth of output, employment and income with tolerance possible level of inflation.
- Development planning takes place in a trio of **public, private and mixed sector-led economics.**
- Development planning incorporates **economic plan, comprehensive plan, partial plan, and the planning process.**
- **Economic plan** is a written document containing government policy decision on how resources will be allocated among various uses as to attain a determined rate of economic growth.
- **Comprehensive plan** set targets to cover all the strategic or major sector of the economy.
- **The partial plan** covers only a part of the economy.
- **Planning process** identifies the procedures for crafting, drawing up and executing a formal economic plan.
- The advocates of planning argue that **uncontrolled or unplanned economy** promotes economic dualism, unstable markets, low investment in key sectors and low level of employment.
- **Hirst (1997**), defined governance as a means by which an activity or ensemble of activities is controlled or directed for purposes of delivering an acceptable range of outcomes according to some established social standard.
- **Pierre** offered dual interpretations of governance;
- Firstly, as the empirical manifestations of state responses to its external environment.
- Secondly, as a process which described how various decisions of actors are harmonized in a social system which question the major role of the state in that process.
- **Meinzein-Dick and Pradhan (2001),** defined institution as a legal pluralism because it recognizes different legal framework, laws and rules through which actors might access natural recourses.
- **Clever (2002)**, employed the terms bureaucratic and socially embedded to make distinction between institutions.

- He asserts that **bureaucratic institutions** are formalized arrangement based on clear organizational structure, contracts, and legal right directed by government or development agencies.
- The **socially embedded** institutions are conceived as those based on culture, social organization and daily practice.
- The **first national development plan (1962-68),** was targeted at increasing the measure of control over the future of Nigeria.
- The plan recognizes Nigeria as a mixed economy and primarily aimed at developing an economy anchored on the cooperation between the public and private sectors, and as expected between federal and regional government with emphasis on technical education, agriculture and industry.
- The plan proposed total investment expenditure by **₦2,132 million** decomposed into public sector investment by **₦ 1,352.3** million and investment expenditure of **₦ 780** million by the private sector.
- The **second national development plan (1970-74),** otherwise known as post war reconstruction and development was anchored on restoring productive capacity and achieving self-reliance.
- The plan encouraged nationwide equity participation in all industries by allocating share to the federal government, the state government in which the industry is located, other states and citizens of Nigeria willing to participate.
- The snapshot of the **third national development plan (1975-80),** was minimum inflationary wage, administrative salary increases plus the slowing growth rate of the economy.
- During this time, many countries had difficulties in receiving their monthly subsidies from federal government.
- The **fourth national development plan (1981-85)** was postponed for the nine months by the **President Shehu Shagari** that was sworn to office on **1st October 1979**.

CHAPTER 18

ALTERNATIVE MEDICINE: THE BASIC PRINCIPLES

- **Medicinal plants** are plants which either whole or part of that have been used solely or in combination with other material to cure, manage or prevent an ailment in man.
- The biochemical compound in medicinal plants that are responsible for healing, curative or prevention of ailments is referred to as **Active Principle.**
- An animal trado-method involving skin puncture or piercing using fine needles for the therapeutic purpose is known as **Acupuncture.**
- Acupuncture is of Chinese Origin.
- Aromatherapy is the use of aromatic essentials or materials for the Medicinal purpose.
- A type of herbal tea preparation from plants parts, leaves,stem,barks that can stand high degree of temperature is referred to as Decoction.
- A Yoruba word for Decoction is **Agbo.**
- A type of herbal tea preparation using hot water and plants parts not involving boiling is **Infusion.**
- A kind of herbal tea preparation using plants parts in a liquid or solvent like water, pap, etc. at room temperature is **Cold extracts.**
- **Cold extracts** in Nigeria is popularly referred to as **sepe or shepe.**
- Factors affecting the quantity and quality of medicinal plants are; **the plant age, Edaphic/Soil factor, Climatic/Weather Factor, Planting or cultivation method.**
- Plants components that confer on them the medicinal properties are collectively called **Active Principle or Substance.**
- Active Principle include **Alkaloids, Glycosides, Flavonoids, Anthocyanins, Tannis, Resins, essence, organic acids.**
- The botanical name for **Nicotene** is **Nicotiana tabacum** and its commonly called **Tobacco**
- The botanical name for **Cocaine** is **Erythroxylon coca** and its commonly called **cocaine**.
- The botanical name for **piperine** is **Piper nigrum** and it's commonly called **Black pepper.**
- The botanical name for **Caffeine** is **coffea aretoica** and it's commonly called **Coffee.**
- The botanical name for **Theobromine** is **Theobroma cacae** and it's commonly called **Chocolate.**

CHAPTER 19

CHEMISTRY OF LIFE

- In 1865, Robert Hooke coined the term **cell.**
- Felix Dujardin named the body of cell **sacode** meaning **substance.**
- All living organisms are composed of **thousands of tissues.**
- **Cell** is regarded as the **basic unit of life.**
- **Electron/light microscope** can be used to view cell.
- **Nucleus** contains the **genetic materials** of a cell.
- **Cytoplasm** houses all organelles in the cell.
- The organelles that are **more unique to plant tissues** are chloroplast, vacuole, cell wall and plasmodestiate.
- **Cell wall** serves as protective and supportive function for plant cell.
- **Chloroplast** helps plant cell to absorb light so that plant can undergo photosynthesis.
- **Vacuole** helps to hold stored food.
- **Lysosome** breaks down old and broken part of the cell into smaller organic molecules that can be reused.
- **Centriole** gives rise to basal bodies.
- Higher plant cells **do not** contain centriole.
- **Eukaryotic cell** contains membrane bound organelles that are not found in prokaryotic cells.
- **Prokaryotic cell** do not have distinct nucleus.
- The only membranous structure that is found in prokaryotes is the **Mesosome.**
- Prokaryotes also contains **photosynthetic membrane** but these are not enclosed in chloroplast as they are in eukaryotes.
- Mitochondria is the **power house of the cell** that supplies energy throughout the cell.
- **Nucle**us contains chromosomes.
- **Nucleoli** are rich in protein and RNA. It is also the site at which **ribosome** is synthesized.
- **Smooth Endoplasmic reticulum** synthesizes lipids.
- **Rough endoplasmic reticulum** synthesizes proteins
- **Golgi body** helps to **transport** proteins across the plasma membrane.
- **Cytosol** helps for metabolism of carbohydrates, lipids, amino acids, nucleotides and protein synthesis.
- Biomolecule is formed from **biological molecules.**
- Biomolecules are **simple organic compounds** found in living organism.
- Biomolecules are characterized into **polymers and monomers.**
- Protein monomer is **amino acid.**
- Carbohydrate monomer is **monosaccharide.**
- Nucleic acid monomer is **nucleotide.**
- Carbohydrates have general formula **{CnH2O}n.**
- **Polysaccharides** are complex molecules.

- Monosaccharide include **trioses, tetroses, pentoses, hexoses and heptoses.**
- Disaccharide include **lactose, sucrose and maltose.**
- Simple lipids are eaters of **fatty acids.**
- Lipids are **insoluble** in water.
- Classification of lipids are**: Acyl glycerol, phospholipids, sphingolipids, steroids & terperiods, waxes, fatty acid derivatives.**
- **Nucleic acids** are divided into R.N.A & D.N.A.
- Protein specific structures are **primary, secondary, tertiary and quaternary structures.**
- **Enzymes** are organic catalyst with properties in purely chemical reaction.
- Enzymes are classified into **six {6}** groups.
- **Genes** are the genetic materials in most form of life including all single & multi-cell organism and virus.
- Genes are especially passive information carriers.
- Carbohydrates, lipids and the carbon skeleton of amino acids, all serves as **fuel for human metabolism.**
- Mature red blood cell lacks mitochondria & therefore can utilize any **glucose** as a fuel.
- Maintenance of blood glucose within the normal range is termed **Glucose homeostasis.**
- **Heme** is a pathway that starts and ends in the mitochondria.
- **Drugs** are exogenous compounds which are administered to the body for their therapeutic pharmacological effects.
- **Phrases of drug actions** include pharmaceutical, pharmacokinetics & pharmacodynamic phase.
- Drug administration route includes **Enteral and Perenteral Administration.**
- The biological principles governing the disposition of drugs or xenobiotics include **Absorption, Distribution and Elimination.**
- **Absorption:** Involves transfer of the drug from the site of administration into the systemic blood circulation.
- **Distribution:** Describes the transport of the absorbed drug [in plasma] to the various tissue of the body.
- **Elimination:** involves the mechanism by which circulating levels of a foreign compound may be reduced and these are by metabolism and excretion.
- Routes of drugs excretion are via the **saliva, expired air, sweat, faeces and mostly urine.**
- **Drug metabolism** involves the removal of drugs from the body.
- **Factors affecting drug metabolism** include Genetic Composition, Effect of strain, Effect on specie, Hormonal factors, Pathological state, Effect on diet, Drug interaction.

CHAPTER 20

COUNSELLING SERVICES IN THE UNIVERSITY

- **Counseling** is a talking therapy in which a person discuss this freely his or her problems and chair feelings with the counsellor.
- **Counseling** is for everybody, it is beneficial for personal, emotional, career and academic difficulties and making appropriate choice.
- **Counseling** is also the process that occurs when a client and counsellor set aside time to explore difficulties which may include stressful emotional feeling of the client.
- **Akinde, (2016)** refer to counselling as a number of procedures used in assisting an individual in solving problems which arise in various aspect of life or in assisting him to maximize his overall personal development so that he could be more effective, satisfied and more useful to the society in which he lives.
- **Guidance** is a kind of advice help given to an individual's especially a students, on matters like choosing a course of study or career work or preparing for vocation, from a person who is superior in the respective field or and expert.
- **The objectives of guidance** is to help individual to understand and accept the positive and negative aspects of his personality, interest, aptitude, attitudes while the **concept of counselling aims** at helping the clients understand and accept themselves as they are and to help students to help themselves.

A brief History of Counselling in Nigeria:

- The history of guidance and counselling in Nigeria can be traces back to the **1960s**, while the date of the formal start of modern guidance in **USA was 1908**.
- The date for the commencement of modern guidance in Nigeria is **1959 at St. Theresa College, Ibadan.**
- The Federal government finally organized the importance of guidance and counselling at the end of the **1970s**. The federal ministry of education encourage guidance and counselling development in schools by establishing guidance and counseling in **1961.**
- **In 1981**, the Federal government of Nigeria acknowledged the need for guidance and counselling services and the concepts was included in the national policy of education.

What Counselling is not?

- Giving advice
- being judgmental
- Attempting to sort out the problems of the client
- Expecting or encouraging a client to behave as a counsellor would behave if confronted with a similar problem in their own life.
- Getting emotionally involved with the client.
- Looking at client's problems from your own perspective, based on your own value system.
- **Time Management:** Some of the most important time management skills includes:

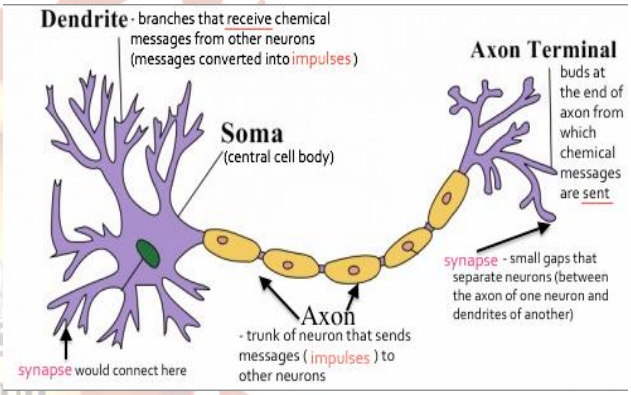
- Organization, Goal Setting, Communication, Planning, Delegation and stress management.
- **Orientation:** It is regarded as an important service(s) to be provided to an individual who are just entering into a new environment or new institution.
- **Effective Study Habit:** Study habits are the ways to study effectively in order to achieve maximally in the chosen course(s).
- **Managing Test and Examination Anxiety:** Test/Examination is a review of what has been learnt. It provides avenue for feedback on what has been taught and evaluation for purpose of placements, selection and or promotion.
- **Anxiety** is a psychological state of restlessness associated normally with the feelings of insecurity, loss of self-worth and inadequacy.
- **Symptoms of Test/Examination Anxiety:** Insomnia, Recklessness, inability to concentrate, boredom, increased heartbeat, confusion/intense sweating, panic/fainting and mental blocks.
- **Issues Susceptible To Counselling:** Poor academic performance, fear, low confidence, low self-esteem, impaired mood, Career pressure, relationship, Addiction, anxiety, cultism, panic tendencies.
- **Indicators to Be Observed: Academic:** Not doing assignments, seeking favour continuously, submitting papers late, drop in grades, repeated absences from class, disorganized or erratic performance.
- **Personal/Interpersonal Indicators:** Unprovoked anger, family problems negative, personality traits and tearfulness.
- **Physical Indicators:** Appearing sick, weight loss excessively, fatigue showing outwardly, lack of personal hygiene, risk indicators, self-destructive, severe depression, suicidal tendencies, absenteeism, and verbal utterances indicating suicidal statements.

CHAPTER 21

➢ BIOLOGICAL BASES OF HUMAN BEHAVIOR

- **Psychology** is the science of behavior (Martin,Carlson and Busklist 2007).
- The word psychology comes from two Greek words **psukhe** meaning breath or soul and **logo** meaning word or reason
- **Biological psychology** is defined as an area of study involving psychology, biology, physiology, biochemistry, neural sciences and related fields.
- **Behavior** is observable and measurable, it can be measured by three fundamentals which include **repeatability, temporal extent and temporal focus.**
- **Genes** are constructed from four different chemicals known as **nucleotides**
- **Genes** are elements which are transferred unchanged from one generation to the other and are found in the nucleus of every living cell.
- **Nucletides** include **Adenine (A), Cytosine (C), Guanine (G)** and **Thymine (T).**
- **DNA** means deoxyribonucleic acid and **RNA** means ribonucleic acid.
- **Codon** is a sequence of three adjacent nucleotides, which encode for a specific amino acid during protein synthesis or translation.
- **Gene expression** is the conversion of the genetic instructions **(genotype)** into a feature in a living cell **(phenotype).**
- **Genetics** is that branch of psychology that deals with how behavior in any trait is passed from one generation to the other.
- **Trait** is any characteristics of an organism like height, colour, behavior etc.
- **Gregor Mendel (1822-1884)** an Austrian scientist was the **father of genetics.**
- **Chromosomes** are tiny thread like structures which contain genetic information.
- **Chromosomes** are usually found in pairs of which one of each pair is inherited from each of the parents.
- Human beings have 23 pairs, Monkeys 27 pairs, Drosophila 4 pairs, Rats 21 pairs, Mice 20 pairs etc.
- **Syndrome** is a recognizable pattern of signs, symptoms and behaviours, especially of a disease or medical or psychological condition caused by inheritance of defective chromosomes
- **Down's syndrome** is also known as **Mongolism** leads to retardation with an intelligent quotient between 20 and 60, it's caused my abnormality on the human 21st chromosome.
- **Turner's syndrome** causes retardation in sexual development within females, it's caused when one pair of the 23rd chromosome is missing.
- **Klinefelter's syndrome** is the condition in which males exhibit behaviour or mannerisms considered typical of a female. It's caused by the presence of additional X in the 23rd chromosome.
- **Mutation** is the change in the structure of a gene.
- **Nervous system** is made up of two types of cells called **neuron and glia.**

- **Neurons** are highly specialized cells that form the active elements of the nervous system.
- **Dendrites, Soma and The Axon** are the main components of a neuron.
- **The Nervous System (NS)** is divided into **Central Nervous System (CNS)** and **Peripheral Nervous System (PNS).**
- **Central Nervous System** is the governing organ of the body and it's made up of the **Brain** and **The Spinal Cord**
- **Hindbrain** is made up of the **Medulla Oblongata, Pons and Cerebellum**
- **Medulla** is a continuation of the spinal cord in the brain, the main functional part of the medulla and pons is a network of nerve cells called **Reticular Activating System (RAS).**
- **Midbrain** is a link between the anterior and posterior parts of the Brain.
- **Forebrain** contains the important parts of the nervous system which include **Thalamus, Hypothalamus, Cerebrum and the Cerebral cortex.**



- **Peripheral Nervous System** consists of sensory nerves which carry messages from the sense organs to the CNS and the motor nerves which carry messages from the CHS to the muscles and glands of the body.
- **PNS** is sub divided into **Somatic Nervous System (SNS)** and **Autonomic Nervous System (ANS).**
- **SNS** deals with body movements as well as reactions to external environment e.g. cold, heat, sunlight etc.
- **ANS** is concerned with the regulation of basic bodily processes and it's made up of motor nerves
- **ANS** is subdivided into **Sympathetic Nervous System and Parasympathetic Nervous System**
- **Sympathetic Nervous System** is concerned with getting the body ready for action, it operates when life is threatened or an individual experiences strong emotions.
- **SNS** and the body stimulates the adrenal gland to produce epinephrine and norepinephrine.
- **PNS** brings the body functions back to normal after the emergency is over.
- **Glands** are organs of the body which secretes substances needed by the body because of their tissue make up.
- Glands are of two types **exocrine and endocrine.**
- **Exocrine glands** have ducts or pipelines which are used to carry their secretions to the target tissues or destinations.
- **Endocrine glands** are ductless and therefore secretes directly into the blood vessels which carries then to target tissues.

- The major endocrine glands and the hormones produced in the body are **Thyroid glands, Parathyroid glands, Adrenal gland, Pancreas gland, Pituitary gland and Gonads.**