ATTENTION
Definition

• Attention is selective observation, i.e., focusing the conscious activity on one stimulus or one group of stimuli and practically neglecting the rest, so as to perceive them. Attending can be focused maximally on only one thing at a time.
ATTENTION AND CONSCIOUSNESS

The total activity of an individual at any moment, can be divided into three concentric field of consciousness:

a) The central field of attention and full consciousness
b) The intermediate field of dim consciousness
c) The outer field of completely unconscious activities
PSYCHOLOGICAL CHARACTERISTICS OF ATTENTION

I- SELECTIVITY: Means that the individual selectivity attends to one stimulus at any moment neglecting other stimuli.

Factors affecting selectivity:

A. Stimulus Factors:

1. Intensity: A strong stimulus is more attractive than a weak one.
2. Repetition and summation: help to increase attention.
3. Changeability: change of the quality, intensity and location if the stimulus helps attention.
4. Contrast: Difference between the stimulus and its background increase the concentration.
5. Strangeness and unfamiliarity: attract more attention.

6. Combination of stimuli: Using more than one sensory organ, e.g., vision, hearing and kinesthetic senses help concentration and attention, e.g., the use of cinema shows and TV programs in teaching and the use of writing and reading aloud in study.
B. Individual Factor:

1. Permanent factors: Such as the level of general intelligence, the state of health of sensory organs, the inherited capacity and the acquired habits of good observation.

2. Temporary factors: Such as the emotional state; the state of general physical health and the interest and motivation in the subject of attention.
II- SHifting of attention

• Attention normally shifts from one stimulus to another. Various factors help this shifting process e.g. monotony, satisfaction, curiosity, tendency to explore the details of the object perceived and the spontaneous shifting character of attention
III- FLUCTUATION OF ATTENTION

- This is the normal tendency for waxing and waning of the quantity of attention to the same stimulus
• Normally the individual attends only to one stimulus at a time. Experienced typewriters, however, can carry a thoughtful conversation while engaged in their routine work. However, they do not attend to the two acts at the same time, with the same power of concentration. Typewriting here has become a habit & can be carried out with minimal effort. Attention to more than one stimulus or act, however, interferes with efficiency.
NEROPHYSIOLOGICAL BASES OF ATTENTION
I- GENERAL INTRODUCTION

The Information processing Model

1. Scanning and screening: that includes selection and exclusion of certain incoming stimuli.

2. Processing: which means adjusting the tone of the incoming information with those already present.

3. Integration: which includes some sort of synthetic, cooperative and harmonized integration between the tuned information.
The Reticular Activating System (RAS)

- **Arousal** and wakefulness
- Sleep-wake cycle
- Cells in the reticular formation can set the pace of activity of cells throughout the brain
- Damage to the RAS can produce reduced attention – confusional state or coma
- **Coma** – an impaired state of consciousness in which individuals are seeming unresponsive to most external stimuli
- Coma can arise after a bilateral damage to RAS or interrupted communication between the RAS and the rest of the brain
- Causes: tumor, strokes, seizures, carbon monoxide etc.
- Chronic coma → chronic vegetative state
- Coming out of the coma → stupor – in and out of consciousness
- Stimulants and depressants have an effect on the RAS system
4. Controlling: which permits the integrated information to be used as a meaningful percept, a conative behaviour, an associative thought etc.
II- ATTENTION IN PARTICULAR

A Process that control the flow of information processing include 3 functions.

1- Selective Attention

• It refers the mechanisms that lead to father processing of few stimuli out of the multiple stimuli that impinge on the sensory apparatus at any one point at a time.
Broadband Differentiate between 3 Types of Selective Attention

• **FILTERING**: involve selection of certain stimuli processing in a single distinctive physical feature e.g. gender based on voice quality.

• **CATEGORIZING**: entails considering only those stimuli features that show it to be member of certain stimulus class as the visual stimuli 4, four, IV are grouped into the same information category despite the differences if their visual form.
• PIGENOHOMEING: influence processing of classes of stimuli based on more complex discriminations than those affected by filtering e.g. a person can be asked to search the content presented by simultaneous speakers 0 to 9 are presented regardless of who says them.
2- Attention as processing capacity

• This concept views attention as a limited (focusing awareness for short span) non specific capacity or pool of resources that can be allocated to specific processing tasks.

• The individual’s evaluation of ongoing performance serve as a feed back mechanism to allow adjustment of the level of processing capacity allocated to a given task. The Allocation of processing capacity varies with the physiological arousal to influence the task performance in an inverted U- fashion.
• At low arousal levels, performance is impaired due to allocation of too little processing capacity.
• Moderate arousal is associated with optimal performance.
• At high arousal levels, performance is impaired due to increased liability of the allocation policy.
3-Sustained attention or vigilance tasks

- Sustained concentration and maintenance of alertness over time are the central concerns of the experimental psychology of vigilance.

- Vigilance or sustained attention tasks are characterized by a continuous demand for alertness and concentration to allow detection of relatively infrequent target stimuli at randomized intervals over a period of at least a few minutes and often for 30 to 60 minutes.
III- THE SITE OF INFORMATION PROCESSING SYSTEM

• Many authors believe that reticular activating system is responsible for the information processing tasks
1. HYPERPROSEXIA: This is increase of attention and power of observation than the average:

*Hyperprosexia* is the abnormal state in which a person concentrates on one thing to the exclusion of everything else

*Paraprosexia* is the inability to pay attention to any one thing (a state of constant distraction).
DISTRACTION: This is the failure to maintain attention to important stimuli for a long time, associated with rapid shifting of attention from one stimulus to another.
Causes of distraction

A. External interfering stimuli: that come from the external environment.

B. Internal stimuli: which may be,
1) Enteroceptive: such as hunger, thirst, full bladder or pain.

2) Emotional disturbance: such as depression, anxiety, fear, anger or phobia.

3) Thought disorders:
   a. Preoccupation with certain problems as in anxiety and reactive depression.
   b. Obsessive ruminations in obsessive compulsive neurosis.
   c. Pressure of thought and lack of discrimination resulting in flight of ideas, e.g. in cases of acute mania and acute schizophrenia.
3. **INATTENTION:** Loss of attention to external stimuli as in cases of fatigue, psychoneurotic and psychotic disorders. Severe degrees of inattention occur in states of confusion, stupor and coma.