THE ENDOCRINE SYSTEM:- The endocrine system consists of glands that secrete chemicals into the bloodstream that help control bodily functioning. (metabolism, growth, development, control your emotions, mood, sexual function & even sleep)

* GLANDS:- They are important organs located throughout the body. They produce & release substances that perform certain functions.

* The messengers in this communication network are called Hormones.

* HORMONES:- They are the chemical substances released by the endocrine glands.

- Hormones are chemicals that coordinate different functions in your body by carrying messages through your blood to your organs, skin, muscles and other tissues. These signals tell your body what to do and when to do it.

* FUNCTIONS OF ENDOCRINE SYSTEM:-

- Makes hormones that control your moods, growth and development, metabolism, organs, & reproduction.
- Control how your hormones are released.
- Sends those hormones into your bloodstream so they can travel to other body parts.

★ PARTS OF THE ENDOCRINE SYSTEM:-

- Many glands make up the endocrine system. The hypothalamus, pituitary gland, and pineal gland are in your brain.
- The thyroid & parathyroid glands are in your neck.
- The thymus is b/w your lungs, the adrenals are on top of your kidneys & the pancreas is behind your stomach.
- Ovaries (if a woman) or testes (if men) are in your pelvic region.

★ PITUITARY GLAND:-

- This is your endocrine system's master gland.
- It uses information it gets from your brain to tell other glands in your body what to do.
- It makes many important hormones, including growth hormones;
  → Prolactin, which helps breastfeeding moms make milk;
  → Antidiuretic hormone (ADH or vasopressin), which controls blood pressure & helps control body water balance through its effect on the kidneys

→ Adrenocorticotropic hormone (ACTH), which stimulates the adrenal gland to make certain hormones.

→ Thyroid stimulating hormone (TSH), which stimulates the production & secretion of thyroid hormones.

→ Oxytocin, which helps in milk ejection during breastfeeding;

→ Luteinizing hormone; which manages estrogen in women & testosterone in men.

★ PINEAL GLAND:- → (a very small gland in the center of the brain) It makes a chemical called melatonin that helps your body get ready to go to sleep. (internal body clock i.e circadian rhythms).

CHAPTER #2

★ LEARNING:- A relatively permanent change in behavior brought about by experience. Learning can not be observed directly; it can only be inferred from changes in behavior. But learning causes not all changes in behavior.

E.g: Your performance on an examination will be affected by your physical & mental condition such as fatigue, fearfullness, or preoccupations.

So, learning is an adaptive process it enhances our ability to change in new behavior. On the basis of experience, we acquire new behaviors or adjust old behavior.

- In other words, as we learn, we change the way we perceive our environment, the way we interpret the incoming stimuli, & therefore the way we interact, or behave.

- John. B. Watson was the first person to study how the process of learning affects our behaviour.

- The central idea behind behaviorism is that only observable behaviours are worthy of research since other abstraction such as a person's mood or thoughts are too subjective.

"TYPES OF LEARNING:

- The methods/types of learning refers to the various ways in which the process of learning can take place. The following methods of learning are the most common forms or means of learning.

1) Conditioning
   - Classical / Respondent
   - Operant / Instrumental
2) Trial & error
3) Observational learning
4) Insight learning
5) Cognitive learning

1) CONDITIONING:- It is the process of learning association b/w environmental events and behavior responses.

- Conditioning is reflected in most of our everyday behavior, our simplest habits to complex skills.

OR

- It is a form of learning where learning occurs as a result of associating a condition or stimulus with a particular reaction or response.

E.g: A place is pleasurable b/c you have had good experiences there.

a) CLASSICAL CONDITIONING:- (Ivan Pavlov) A type of learning in which a neutral stimulus comes to bring about a response after it is paired with a stimulus that naturally brings about that response.

- EXPERIMENT:
- Pavlov had been studying the secretion of stomach acids & salivations in dogs in response to eating varying amounts & kinds of food.
- While doing his research, he observed a curious phenomenon: Sometimes salivation would begin in the dogs when they had not yet eaten any food. Just the sight of the experimenter who normally brought the food, or even the sound of the experimenter's footsteps, was enough to produce salivation in the dogs.

- NEUTRAL STIMULUS:- A stimulus that, before conditioning does not naturally bring about the response of interest. (E.g: Bell → it does not lead to salivation but to some irrelevant response, such as, picking up the ears or perhaps a startle reactions).

- UNCONDITIONED STIMULUS (UCS):- A stimulus that naturally brings about a particular response without having been learned. (E.g: Meat → which naturally causes a dog to salivate - the response we are interested in conditioning).

- UNCONDITIONED RESPONSE (UCR):- A response that is natural & needs no training (e.g: salivation at the smell of food).

NOTE: The goal of conditioning is for the dog to associate the bell with the unconditioned stimulus (meat) & therefore to bring about the same sort of response as the unconditioned stimulus.

- CONDITIONED STIMULUS (CS):- A once-neutral stimulus that has been paired with an unconditioned stimulus to bring about a response formerly caused only by the unconditioned stimulus. (E.g: Bell → After a number of pairings of the bell & meat, the bell alone causes the dog to salivate. When the conditioning is complete, the bell has changed from a neutral stimulus to what is called a conditioned stimulus).

CONDITIONED RESPONSE (CR):- A response that, after conditioning, follows a previously neutral stimulus. (Eg: Salivation → at the ringing of a bell)

- After conditioning, then, the conditioned stimulus brings about the conditioned response.

(Little Albert Experiment by J. B. Watson & Rosalie Rayner)

* EXTINCTION:- A basic phenomenon of learning that occurs when a previously conditioned response decreases in frequency and eventually disappears.

Eg: To produce extinction one needs to end the association b/w conditioned stimuli & unconditioned stimuli. For instance, if we had trained a dog to salivate (the conditioned response) at the ringing of a bell (the conditioned stimulus), we could produce extinction by repeatedly ringing the bell but not providing meat (the unconditioned stimulus). At first the dog would continue to salivate when it heard the bell, but after a few instances, the amount of salivation would probably decline, & the dog would eventually stop responding to the bell altogether. At that point, we could say that the response had been extinguished. In sum, extinction occurs when the conditioned stimulus is presented repeatedly without the unconditioned stimulus.

★ SPONTANEOUS RECOVERY:- The reemergence of an extinguished conditioned response after a period of rest & with no further conditioning.

Eg: If he rang a bell, the dog once again salivated - an effect known as spontaneous recovery.

Spontaneous recovery also helps explain why it is so hard to overcome drug addictions. For example, cocaine addicts who are thought to be "cured" can experience an irresistable impulse to use the drug again if they are subsequently confronted by a stimulus with strong connections to the drug, such as white powder.

★ STIMULUS GENERALIZATION:- A process in which, after a stimulus has been conditioned to produce a particular response, stimuli that are similar to the original stimulus produce the same response.

Eg: Someone can have a negative or traumatic experience with a dog and then generalize that fear to other dogs

Eg: A parent who teaches their child to say 'thank you' at home will transfer that skill to other situations such as when their teacher gives them something in the classroom

Eg: When we see packaging that looks similar to our ~~fast~~ favorite brand, we are more likely to pick it up & buy it due to the branding association.

STIMULUS DISCRIMINATION:- The process that occurs if two stimuli are sufficiently distinct from one another that one evokes a conditioned response but the other does not; the ability to differentiate b/w stimuli.

E.g: Pavlov's dog started to salivate when it heard the sound of a bell, but it did not salivate in response to any other sounds.

E.g: When the traffic light turns green, drivers keep their car going forward, but not when the light turns red. The green light is then a stimulus discrimination for going while the red light is for stopping.

E.g: When a manager is present, the employees work faster than when she's not present. The manager's presence is a stimulus discrimination that controls how fast the employees do their work.

b) OPERANT CONDITIONING:- (Instrumental, B.F. Skinner)
Learning in which a voluntary response is strengthened or weakened, depending on its favorable or unfavorable consequences.

- Operant conditioning applies to voluntary responses, which an organism performs deliberately to produce a desirable outcome.
- The term "operant" emphasizes the point: The organism operates on its environment to produce a desirable

- Operant conditioning is at work when we learn that studying hard results in good grades.

★ THORNDIKE'S LAW OF EFFECT:- (Edward. L. Thorndike)

It states that behaviors followed by a reward or reinforcement are more likely to be repeated in future, whereas behaviors followed by a punishment are less likely in the future.

- (E.g: It states that the consumer's probability of repeating purchase of a brand would increase if he/she were satisfied with the purchase and decrease if dissatisfied.)

E.g: If you work hard and then receive a promotion & pay raise, you will be more likely to continue to put in more effort at work.

	Positive (+)	Negative (-)
Reinforcement	Something desirable is added to the environment; the behavior is likely to increase.	Something aversive is removed from the environment or avoided; the behavior is likely to to increase.
Punishment	Something aversive is added to the environment; the behavior is likely to decrease.	Something desirable is removed from the environment; the behavior is likely to decrease.

E.g: ① A mother gives her daughter a toy for doing H/W. ⓑ A father praises his son for practicing soccer.

②ⓐ To stop his mother's nagging, Ali does his chores. ⓑ To remove the bad smell from her body, Sara takes a shower.

③ⓐ Mom gives Ali additional chores for lying. ⓑ Jon was assigned extra H/W b/c he was late to school.

④ⓐ Mary's TV time was cut by 20 mints b/c she didn't listen to her Mom. ⓑ Taking away a boy's recess privilege to stop his disruption.

ⓑ Taking away a teenager phone to stop his bad attitude

OPERANT CONDITIONING:- Experiment (Skinner Box, Rat)
(Rat)

* KEY CONCEPS OF OPERANT CONDITIONING:-

1) REINFORCEMENT: The process by which a stimulus increases the probability that a preceding behavior will be repeated.

E.g: Providing a sticker to a student once they have completed an assignment.

(By Edward L. Thorndike)

2) TRIAL & ERROR:- It is a problem solving method in which multiple attempts are made to reach a solution. It is a basic method of learning that essentially all organisms use to learn new behaviors.

- Trial & error is trying a method, observing if it works, & if it doesn't trying a new method. This process is repeated until success or a solution is reached.

E.g: If you are trying to operate a lock with the bunch of keys and you do not have knowledge of the right key, you will try to operate the lock with several keys that can fit into the lock & eventually discover the right key.

3) COGNITIVE LEARNING:- (Thought processes) (By Jean Piaget)
(Think, reason, learn & remember)

- It is about understanding how the human mind works while people learn. The theory focuses on how information is processed by the brain, & how learning occurs through that internal processing of information.

(attention, memory, perception, decision making, problem solving & thinking)

- It is based on the idea that people mentally process the information they receive, rather than simply responding to stimuli from their environment.
- It focuses on the thought process behind the behavior.
- Cognitive psychologists believe in order to understand behavior, you have to understand what goes on in the brain to cause the behavior.

Eg: Encouraging discussions about what is being taught.

Eg: Helping students find new solutions to problems

Eg: Asking students to justify & explain their thinking.

4) OBSERVATIONAL LEARNING:- (Albert Bandura)

- Learning by observing the behavior of another person, a model.
- Because of its reliance on observation of others - a social phenomenon - the perspective taken by Bandura is often referred to as a social cognitive approach to learning.
- Bobo doll experiment.
  - ⇒ (72 children, 36 boys & 36 girls)
  - ⇒ (age range b/w 3 & 6 years) (Pre-school)
  - ⇒ 24 → adult modeling aggressive behavior
  - ⇒ 24 → " " non-aggressive "
  - ⇒ 24 → Control group

(intuition, perception, awareness, understanding etc)

5) INSIGHT LEARNING:-

- This theory is the part of Gestalt psychology & given by Wolfgang Kohler in the early 1900s.
- INSIGHT:- It is the sudden understanding of the components of a problem that makes the solution apparent (the sudden understanding of a solution to a problem without any process of Trial & Error). All discoveries & inventions have taken place through insight.

(9 chimpanzees)

1) In one experiment, Kohler put a chimpanzee inside a cage & a banana was hung from the roof of the cage. A box was placed inside the cage. The chimpanzee tried to reach the banana by jumping but could not succeed. Suddenly, he got an idea & used the box as a jumping platform by placing it just below the hanging banana.

2) In other experiment, Kohler made this problem more difficult. Now it required two or three boxes to reach the banana. Moreover, the placing of one box over the other required different specific arrangements.

3) In a more complicated experiment, banana was placed outside the cage of the chimpanzee. Two sticks, one larger than the

other, were placed inside the cage. One was hollow at one end so that the other stick could be thrust into it to form a longer stick. The banana was so kept that it could not be picked up by one of the sticks. The chimpanzee first tried these sticks one after the other but failed. suddenly, he got a bright idea. The animal joined the two sticks together & reached the banana (sultan)

- With such experiments, Kohler concluded that in the solution of problems, his chimpanzees did not resort to the blind trial & error mechanism. They solved their problems intelligently. Kohler used the term "insight to describe the learning of his apes/chimpanzees.

* FACTORS AFFECTING/INFLUENCING LEARNING:-

1) Age: Age can influence the capability of learning a child can not learn the things what elders can learn & an aged person will have difficulty to learn modern ways of knowledge.

2) Intelligence: Intelligence effects very much on learning. if subject/individual has maximum level of intelligence he can learn more & easily at maximum level.

3) Attention: Attention is also very important factor, which influence on learning, of a person does not pay attention towards how to learn a specific knowledge, skill or experience, he can not learn easily but if the individual pays attention the results are vise versa.

4) Interest: Subject has intelligence & can also pay attention towards learning but he does not have interest in how to learn a specific knowledge, skill or experience, level or process of learning would be very slow.

5) Mental & Physical Health:

- Anxiety & stress have been observed to affect learning skills such as time management, concentration, study motivation & learning methods & which can affect students' performance & potentially poor academic performance. Any physical ailments also affects our learning.

6) Fatigue:

- If an individual is tired, he cannot pay full attention towards learn something.

7) Nature of Knowledge:

- If knowledge is interesting in nature, any individual can learn it more efficiently.

8) Recitation:

- Recitation is more effective tool of learning if an individual recite something louder he/she can learn more effectively.

9) Meaningfullness:

- If the material of knowledge is meaningfull the individual will learn it more effectively & easily, meaningless neither can be learnt easily nor kept in memory on long term basis.

10) Exercise & repetition:

- Single act is learnt in single trial but complex acts require repeated trials. If a material is difficult to learn it can be learnt through exercises or repeated trials.

11) By parts learning:

- If the material is so long, it can be divided into small parts, so individual can learn specific knowledge, skill etc more effectively.

12) Reward & Punishment:

- The presence or absence of reward can affect learning generally, reward is more effective in promoting learning than is punishment, the latter does have some effects on learning, it tends to repress a desired response then to extinguish it.