PSY502 - Lesson 20+21

Neo-Behaviourists

🔷 WHAT IS NEO-BEHAVIOURISM?

Behaviourism (by John B. Watson) said:

Psychology should study only what we can see and measure - that is **behaviour**, not thoughts or feelings.

Neo-behaviourists agreed with Watson's scientific style:

- No introspection (looking inside your own mind and guessing).
- No speculation.
- Only **observable behaviour** and experiments.

But they also slowly started adding things like goals, purpose, and mental factors.

So:

➡️ Neo-behaviourists = Behaviourists after Watson who kept his method but expanded it.

🔷 CLARK HULL - BEHAVIOUR AS A FORMULA

Clark Hull wanted psychology to be like physics or maths. So he wrote **behaviour as an equation**:

SER = D × V × K × SHR

Let us break this down.

🔶 SER = Behaviour

SER stands for **Strength of the Excitatory Reaction**, but simply:

➡️ SER = How strongly a person behaves in a certain way

🔶 D = Drive

Drive = an internal need

Examples:

- Hunger
- Thirst
- Desire to succeed
- Need for money

📌 Example:

If you are hungry, that hunger is your **drive** to go find food.

🔶 V = Valence (Stimulus intensity)

Valence = how strong or attractive the stimulus is

In simple words: how powerful the thing is that you are reacting to

📌 Example:

A small piece of chocolate vs a full biryani plate.

The biryani has stronger **valence** for you.

🔶 K = Incentive (Motivation)

Incentive = the **reward you expect**

📌 Example:

You study because:

- You want good grades
- You want a degree
- You want a job

  All of these are **incentives**

🔶 SHR = Habit

Habit = something you have learned by repetition

📌 Example:

If every night you revise at 10 pm, that becomes a **habit**.

So Hull says:

➡️ Behaviour = Drive × Valence × Incentive × Habit

📌 Real-life example:

You go to the fridge at midnight.

Why?

- D: You are hungry
- V: The food looks tasty
- K: You expect pleasure from eating
- SHR: You have the habit of late-night snacking

🔷 EDWARD TOLMAN - PURPOSE IN BEHAVIOUR

Tolman said:

Psychology should study behaviour, but behaviour has **purpose**.

That is why he is called a **Purposive Behaviourist**.

He gave this formula:

B = f (S, A)

🔶 B = Behaviour

🔶 f = is a function of (means “depends on”)

🔶 S = Situational variables (environment factors)

🔶 A = Antecedent variables (personal factors)

✔️ Situational variables = things outside you

Examples:

- Weather
- Noise
- Classroom
- Traffic

✔️ Antecedent variables = things inside you

Examples:

- Age
- Gender
- Past experience
- Health
- Intelligence

📌 Example:

Two students in the same class behave differently.

Why?

- S (situation): Same teacher, same room
- A (antecedents): One is tired, one is motivated

➡️ Behaviour depends on both situation and the person.

🔷 EDWIN GUTHRIE - LAW OF RECENCY

Guthrie said:

The **last thing you do** in a situation is the most likely to be repeated.

This comes from **Thorndike's Law of Recency**.

📌 Meaning:

➡️ Whatever behaviour happened last in a situation sticks most strongly.

Example:

You try to open a door.

- First you push, it does not work.
- Then you pull, it opens.

➡️ Next time you see that door, you will **pull**, because it worked last time.

Guthrie also talked about **neurosis**.

🔷 Neurosis = mental distress due to inner conflict

Example:

You want to speak in class but you fear being judged.

He said neurosis happens because of **conflict of responses** - your mind wants two opposite things at the same time.

🔷 B.F. SKINNER - OPERANT CONDITIONING

Skinner is one of the most famous psychologists.

He studied how behaviour is shaped by **reinforcement**.

He used:

- Rats
- Pigeons
- Skinner Box (special cages for experiments)

He developed **Operant Conditioning**.

🔷 Operant Conditioning = learning by consequences

If a behaviour is followed by reward → it increases

If followed by punishment → it decreases

🔶 Positive Reinforcement

Adding something good

📌 Example:

You get food for pressing a lever → you press more

🔶 Negative Reinforcement (as taught in this lesson)

Giving punishment or removing something good

📌 Example:

You misbehave → you are scolded or denied food

Skinner also gave **Schedules of Reinforcement**:

1️⃣ Fixed Ratio

Reward after fixed number of responses

Example: After every 5 correct answers, you get a star

2️⃣ Variable Ratio

Reward after random number of responses

Example: Slot machines

3️⃣ Fixed Interval

Reward after fixed time

Example: Salary every month

4️⃣ Variable Interval

Reward after random time

Example: Surprise quizzes

🔷 KARL LASHLEY - BRAIN AND BEHAVIOUR

Lashley said:

Behaviour comes from the **cerebral cortex** (outer layer of the brain).

He gave two principles:

1️⃣ Principle of Equipotentiality

All parts of the cortex can do similar jobs

📌 Meaning:

If one part is damaged, other parts can still help learning.

2️⃣ Principle of Mass Action

The more cortex you have working, the better the learning

📌 Meaning:

Learning depends on how much brain tissue is involved, not just where.

🔷 DONALD HEBB

Hebb showed that even if part of the brain is removed, **IQ may stay normal**.

This supports Lashley's idea that the brain can reorganize itself.

🔷 HARLOW, MOWRER AND THE SHIFT

Harlow showed:

Curiosity, exploration, and manipulation affect learning

Mowrer showed:

Hope and disappointment affect learning

So behaviourism slowly started adding **mental concepts** again:

- Curiosity
- Hope
- Fear
- Disappointment

➡️ Behaviourism moved from pure observation toward understanding the mind too.

🌟 FINAL BIG IDEA

Neo-behaviourists:

✔️ Kept Watson's scientific method

✔️ Studied behaviour with experiments

✔️ But slowly added purpose, motivation, brain, and mental factors

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1. Who are Neo-Behaviourists?

Answer:

Neo-behaviourists are psychologists who followed the ideas of John B. Watson (founder of behaviourism) but worked after him. They retained Watson's focus on studying **observable behaviour** (what we can see and measure) rather than introspection or speculation about thoughts and feelings. Neo-behaviourists used scientific methods and experiments, while gradually including concepts such as purpose, motivation, and mental factors to explain behaviour.

Explanation:

Watson said psychology should only deal with measurable actions, like pressing a lever or running, not thinking. Neo-behaviourists kept this approach but expanded it. They started asking *why* a behaviour occurs, not just *what* occurs, bringing in things like goals or motivation.

Example:

Clark Hull, Tolman, and Skinner were all neo-behaviourists. Hull used maths to explain behaviour, Tolman focused on purposeful behaviour, and Skinner studied learning through rewards and punishments.

Tips:

- Remember: Neo-behaviourists = "Watson + extra"
- They are different from classical behaviourists because they slowly included mentalistic ideas.

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2. What is Clark Hull's theory of behaviour?

Answer:

Clark Hull proposed that behaviour is a function of four factors, expressed in the equation: **SER = D × V × K × SHR**.

- **SER** = Behaviour
- **D (Drive)** = internal need or motivation
- **V (Valence)** = stimulus intensity or attraction/repulsion
- **K (Incentive)** = expected reward
- **SHR (Habit)** = learned behaviour from repetition

Hull believed that these four factors interact to determine how a person acts in any situation.

Explanation:

Hull treated psychology like a mathematical science. He thought we could **predict behaviour** using measurable factors. Drives (D) push someone to act, stimulus intensity (V) makes the action noticeable, incentive (K) encourages the act, and habit (SHR) shows past repetition influencing the current action.

Example:

A hungry student (D) sees a pizza slice (V), wants to eat it (K), and has a habit of snacking at night (SHR) → Result: The student eats the pizza (SER).

Tips:

- Memorize the equation as **"Drive × Stimulus × Incentive × Habit = Behaviour"**
- Think of real-life examples like eating, studying, or exercising to make it concrete.

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3. What are Tolman's contributions to behaviourism?

Answer:

Edward Tolman introduced the idea of **purposive behaviour**, meaning behaviour has a goal or purpose. He proposed the equation: **B = f(S, A)**

- **B** = Behaviour
- **S** = Situational variables (external environment)
- **A** = Antecedent variables (internal factors, e.g., age, gender, prior experience)

Tolman emphasized that behaviour is influenced both by the situation and the characteristics of the individual.

Explanation:

Tolman moved behaviourism closer to understanding **intentions** and **goals**. Instead of studying reflexes or habits alone, he considered *why* someone does something.

Example:

Two students in the same classroom behave differently:

- Student A participates eagerly → high motivation (antecedent)
- Student B remains quiet → lack of motivation (antecedent)

  Here, **situational variables** are the same (classroom), but **antecedent variables** differ.

Tips:

- Purposive behaviour = behaviour with a goal.
- Remember the equation: **Behaviour = function of situation and individual factors.**

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4. What is Guthrie's law of recency and contribution to behaviourism?

Answer:

Guthrie's **Law of Recency** states that the last response performed in a situation is the most likely to be repeated. He argued that behaviour can be **predicted and controlled** using this principle. He also applied behaviourism to understand **neurosis**, defining it as a conflict between competing responses.

Explanation:

Guthrie observed that what you do last in any situation leaves the strongest impression. For example, if an action leads to success, you will repeat it next time. His work extended behaviourism into **psychotherapy**, showing how understanding habits could help treat mental disorders.

Example:

A child tries two ways to open a door: pushing (fails), then pulling (succeeds). Next time, the child will likely **pull**, because it was the last successful act.

Tips:

- Law of recency = last act sticks
- Connect this with habit formation and learning patterns

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5. What is B.F. Skinner's operant conditioning?

Answer:

B.F. Skinner studied **operant conditioning**, which is learning through consequences. He distinguished between:

- **Positive reinforcement** = adding something pleasant to increase behaviour
- **Negative reinforcement** = adding punishment or removing something good to influence behaviour

He also developed **schedules of reinforcement**: fixed ratio, variable ratio, fixed interval, and variable interval.

Explanation:

Skinner observed animals in Skinner boxes and noted that behaviour is shaped by rewards and punishments. Unlike Pavlov (classical conditioning), Skinner focused on voluntary behaviour influenced by **consequences**.

Example:

- Positive reinforcement: Rat presses lever → gets food → presses lever more
- Negative reinforcement: Child misbehaves → is scolded → child avoids misbehaving

Tips:

- Positive reinforcement = add reward
- Negative reinforcement = remove reward/punishment
- Learn examples of all four reinforcement schedules for exams

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6. What are Karl Lashley's principles regarding behaviour and the brain?

Answer:

Karl Lashley studied the role of the **cerebral cortex** in behaviour and learning. He proposed:

1. **Principle of Equipotentiality** – all parts of the cortex can perform similar functions; if one part is damaged, others compensate.
2. **Principle of Mass Action** – the more cortical tissue is involved, the better learning and performance.

Explanation:

Lashley showed that learning and behaviour are **brain-dependent**, not just about habits or reinforcement. His work emphasized the **biological basis of behaviour**.

Example:

If part of a rat's brain is removed, it can still learn a maze, showing other parts compensate (equipotentiality). The more brain involved, the faster the learning (mass action).

Tips:

- Equipotentiality = flexibility of the brain
- Mass action = learning improves with more brain involvement

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7. How did Hebb, Harlow, and Mowrer expand behaviourism?

Answer:

- **Donald Hebb**: Showed that removing part of the brain may not reduce IQ, supporting Lashley's equipotentiality.
- **Harvey Harlow**: Showed curiosity, exploration, and manipulation affect animal learning.
- **Hobart Mowrer**: Demonstrated that **hope and disappointment** influence learning.

Explanation:

These psychologists gradually introduced **mentalistic concepts** like motivation, curiosity, hope, and emotional factors into behaviourism, bridging the gap between strict behaviourism and cognitive psychology.

Example:

- A rat exploring a maze learns faster if it is curious (Harlow)
- A child studies more if they are hopeful for good grades (Mowrer)

Tips:

- Neo-behaviourism gradually reintroduced **mind-related concepts**
- Think of motivation, curiosity, and emotion as "soft behaviourist" ideas

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1. Explain Neo-Behaviourism and its key characteristics.

Answer:

Introduction

Neo-Behaviourism is an extension of classical behaviourism developed after John B. Watson. Neo-behaviourists maintained Watson's focus on **observable and measurable behaviour** but also began to incorporate variables such as purpose, motivation, and mental factors into their explanations.

Key Characteristics

Feature	Explanation
Scientific approach	Only observable behaviour is studied, experiments are used.
Rejection of introspection	Looking into the mind or speculating about thoughts is avoided.
Focus on prediction	Behaviour can be explained and predicted through scientific laws or principles.
Introduction of purposiveness	Some neo-behaviourists, like Tolman, included goals or purpose in behaviour.
Integration of reinforcement	Behaviour can be shaped by rewards or punishments (Skinner).
Inclusion of mentalistic concepts	Concepts like curiosity, hope, and motivation slowly re-entered psychology.

Neo-Behaviourist Psychologists

- **Clark Hull** – mathematical explanation of behaviour (SER = D × V × K × SHR)
- **Edward Tolman** – purposive behaviour (B = f(S, A))
- **Edwin Guthrie** – law of recency and conflict theory of neurosis
- **B.F. Skinner** – operant conditioning and reinforcement
- **Karl Lashley** – cerebral cortex, principles of equipotentiality and mass action
- **Donald Hebb, Harvey Harlow, Hobart Mowrer** – introduced brain activity, curiosity, hope, and disappointment

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Detailed Plain-English Explanation:

Think of neo-behaviourism as “Watson’s behaviourism plus extra ideas.” They still observed what people or animals did, but also asked why they did it, considering goals, mental states, and brain functions. Imagine studying rats in a lab: not only do you watch what they do, but you also notice **why they do it** and what internal or external factors affect them.

Example:

A rat presses a lever:

- Watson: “It presses because we observe it doing so.”
- Hull: “It presses because it is hungry (D), sees food (V), wants reward (K), and has done this before (SHR).”
- Tolman: “It presses with the goal of getting food—it has purpose.”

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2. Explain Clark Hull’s theory of behaviour and his mathematical equation.

Answer:

Introduction

Clark Hull aimed to make psychology **precise and measurable**. He wanted to predict behaviour using mathematics. He combined ideas from **Pavlovian conditioning** and **Gestalt psychology**.

Hull’s Behaviour Equation

SER = D × V × K × SHR

Symbol	Meaning	Explanation
SER	Behaviour	The observable action or response
D	Drive	Internal need, e.g., hunger, thirst, desire
V	Valence	Stimulus intensity; how attractive or repulsive the stimulus is
K	Incentive	Motivation or expected reward
SHR	Habit	Learned behaviour from repetition

Explanation

- **Drive (D):** Pushes the organism to act
- **Valence (V):** Determines how strongly the stimulus affects behaviour
- **Incentive (K):** Provides motivation to achieve a goal
- **Habit (SHR):** Past learning that makes behaviour likely

Example Table: Applying Hull's Equation

Factor	Example for Studying Late at Night
D	Need to pass exams
V	Comfortable study environment
K	Reward of good grades
SHR	Habit of studying at 10 pm
SER	Actual behaviour: Studying

Detailed Plain-English Explanation:

Hull's equation is like a recipe: the outcome (behaviour) depends on several ingredients (drive, valence, incentive, habit). If one ingredient is missing, behaviour may not occur as strongly. Think of it like baking: missing sugar changes the cake; missing drive changes the action.

3. Describe Edward Tolman's purposive behaviourism.

Answer:

Introduction

Tolman argued that **behaviour has a purpose**. He called it **purposive behaviourism**. He introduced an equation to show how behaviour depends on **situational** and **personal variables**:

B = f(S, A)

Symbol	Meaning
B	Behaviour

Symbol	Meaning
S	Situational variables (environment)
A	Antecedent variables (personal characteristics, past experience)

Explanation

- **Situational variables (S):** External environment, e.g., temperature, classroom, noise
- **Antecedent variables (A):** Internal or prior factors, e.g., age, gender, motivation, past knowledge

Tolman focused on **goal-directed behaviour**, not just reflexes or habits.

Example:

Two students in the same class:

- Student A participates actively → motivated, confident (A)
- Student B remains quiet → anxious, tired (A)

Both share the same situation (S = same classroom), but behaviour (B) differs because of antecedent variables.

Detailed Plain-English Explanation:

Tolman said behaviour is not random—it has a goal. Think of a mouse in a maze: it explores purposefully, not just randomly. Behaviour depends on the environment (maze layout) and internal factors (hunger, prior experience). So psychology is about **observing actions and understanding the "why" behind them**.

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4. Explain Edwin Guthrie's law of recency and contribution to behaviourist psychotherapy.

Answer:

Law of Recency

- Guthrie stated that the **last response made in a situation is most likely to be repeated**.

- Behaviour is shaped by **recent actions** and their success.

Behaviourist Psychotherapy

- Guthrie applied behaviourism to mental disorders like **neurosis**.
- Neurosis = psychological conflict caused by opposing responses
- He suggested that observing and modifying repeated responses can help treat neurosis.

Example

- A child tries to open a door: push fails, pull succeeds → next time child will pull (law of recency).
- A person avoids anxiety-provoking situations due to past experience → therapy can modify repeated behaviour.

Detailed Plain-English Explanation:

Guthrie was less experimental, more observational. He noticed that **what you do last matters most**. He also applied this to therapy: if you understand which responses people repeat, you can guide them to healthier actions. Think of it as **training habits through observation**.

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5. Explain B.F. Skinner's operant conditioning and reinforcement schedules.

Answer:

Introduction

Skinner extended behaviourism by focusing on **learning through consequences**. He called it **operant conditioning**, which differs from Pavlov's classical conditioning because it involves voluntary behaviour.

Key Concepts

Concept	Meaning
Positive Reinforcement	Adding something pleasant to increase behaviour

Concept	Meaning
Negative Reinforcement	Adding punishment or removing something good to influence behaviour
Punishment	Reducing behaviour by applying adverse consequence

Schedules of Reinforcement

Schedule	Definition	Example
Fixed Ratio	Reward after fixed number of responses	Food after 5 lever presses
Variable Ratio	Reward after variable responses	Slot machine payouts
Fixed Interval	Reward after fixed time	Monthly salary
Variable Interval	Reward after random time	Surprise quiz

Example

- Rat presses lever → gets food → presses more (positive reinforcement)
- Child misbehaves → scolded → stops misbehaving (negative reinforcement/punishment)

Detailed Plain-English Explanation:

Skinner showed that behaviour can be **shaped by consequences**. Reinforcement encourages behaviour, while punishment discourages it. Schedules control how often rewards are given, affecting learning patterns. It's like **training a pet**: you reward it consistently or sometimes randomly, and it changes behaviour accordingly.

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6. Explain Karl Lashley's principles and their significance in psychology.

Answer:

Introduction

Lashley studied how the **brain controls behaviour and learning**, focusing on the **cerebral cortex**.

Principles

1. **Equipotentiality:** All parts of the cortex have similar potential; if one part is damaged, others compensate.
2. **Mass Action:** The more cortex involved, the better learning occurs.

Significance

- Showed the **biological basis of learning**
- Connected brain functioning with behaviour
- Supported the idea that the brain is flexible and resilient

Example:

- Removing part of a rat's cortex → it still learns a maze because other parts compensate (equipotentiality)
- Learning improves as more brain areas participate (mass action)

Detailed Plain-English Explanation:

Lashley proved behaviour isn't only about habits—it's about brain activity. The brain is like a team: if one player is injured, others can take over (equipotentiality). The more team members playing, the better the game (mass action).

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7. How did Hebb, Harlow, and Mowrer contribute to the evolution of behaviourism?

Answer:

Psychologist	Contribution
Donald Hebb	Showed IQ may remain normal even if part of the brain is removed; supports equipotentiality.
Harvey Harlow	Showed curiosity, exploration, and manipulation affect learning.
Hobart Mowrer	Demonstrated that hope and disappointment influence learning.

Significance

- Introduced **mentalistic and motivational factors** into behaviourism

- Bridged the gap between strict behaviourism and cognitive psychology

Example:

- Curious animals explore more → faster learning (Harlow)
- Students study harder when hopeful for rewards → improved learning (Mowrer)

Detailed Plain-English Explanation:

Behaviourism originally ignored thoughts and feelings. These psychologists slowly added **internal mental factors** like curiosity, hope, and motivation. They made behaviourism more realistic and closer to real-life learning.

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1. Simple Conceptual MCQs

Q1: Neo-behaviourists differ from Watsonian behaviourists because they:

A) Study only introspection

B) Consider purpose, motivation, and mental factors

C) Ignore observable behaviour

D) Reject scientific methods

Answer: B

Explanation: Neo-behaviourists keep Watson's focus on observable behaviour but also include purpose, motivation, and mentalistic factors.

Q2: Clark Hull's equation SER = D × V × K × SHR explains:

A) How memory is formed

B) How behaviour depends on drive, stimulus, incentive, and habit

C) How intelligence is measured

D) How personality develops

Answer: B

Explanation: Hull mathematically explained behaviour using Drive (D), Valence (V), Incentive (K), and Habit (SHR).

Q3: In Tolman’s equation B = f(S, A), A stands for:

A) Action

B) Antecedent variables

C) Attention

D) Affect

Answer: B

Explanation: Antecedent variables are internal characteristics like age, gender, motivation, or past experience that affect behaviour.

Q4: Guthrie’s law of recency states that:

A) Behaviour is determined by past reinforcement only

B) The last response in a situation is most likely to be repeated

C) All behaviours are innate

D) Punishment is more effective than reward

Answer: B

Explanation: The last act performed in a situation is the strongest predictor of future behaviour.

Q5: Skinner’s operant conditioning primarily deals with:

A) Reflexive behaviour

B) Voluntary behaviour shaped by consequences

C) Intelligence testing

D) Dream analysis

Answer: B

Explanation: Operant conditioning focuses on voluntary actions influenced by reinforcement or punishment.

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2. True/False Statements

Q6: Neo-behaviourists completely reject any mentalistic concepts.

Answer: False

Explanation: They slowly introduced concepts like purpose, curiosity, hope, and motivation.

Q7: Hull combined Gestalt psychology and Pavlovian conditioning in his theory of behaviour.

Answer: True

Explanation: Hull was influenced by both schools to mathematically describe behaviour.

Q8: Tolman believed behaviour is random and cannot have a goal.

Answer: False

Explanation: Tolman introduced purposive behaviour; behaviour is goal-directed.

Q9: Skinner's fixed interval schedule gives reinforcement after a fixed number of responses.

Answer: False

Explanation: Fixed interval schedule gives reinforcement after a fixed time period; fixed ratio is after a fixed number of responses.

Q10: Lashley's principle of equipotentiality suggests that if one part of the cortex is damaged, learning may continue with other parts.

Answer: True

Explanation: Equipotentiality shows the brain's flexibility; other parts can compensate for damage.

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3. Tricky/Conceptual MCQs

Q11: Which of the following statements about Hull's theory is correct?

A) Behaviour occurs independently of past habits

B) Drive, stimulus intensity, incentive, and habit interact to produce behaviour

C) Only reinforcement determines behaviour

D) Hull ignored Pavlov's classical conditioning

Answer: B

Explanation: Hull emphasized that behaviour results from the interaction of drive (D), stimulus intensity (V), incentive (K), and habit (SHR).

Q12: If a student studies late at night because they are motivated by reward, Hull would explain this as:

A) B = f(S, A)

B) SER = D × V × K × SHR

C) Law of recency

D) Operant conditioning

Answer: B

Explanation: Behaviour is explained by Hull's formula: drive (D) = need to pass exams, valence (V) = study environment, incentive (K) = good grades, habit (SHR) = regular study habit.

Q13: In Skinner's variable ratio schedule, reinforcement is given:

A) After a fixed number of responses

B) After a random number of responses

C) After a fixed time period

D) After a variable time period

Answer: B

Explanation: Variable ratio gives reinforcement after an unpredictable number of responses, e.g., slot machines.

Q14 (Tricky): A rat presses a lever in a Skinner box to get food. On another day, it avoids pressing after being shocked. This example demonstrates:

A) Classical conditioning

B) Law of recency

C) Positive and negative reinforcement

D) Equipotentiality

Answer: C

Explanation: Pressing for food = positive reinforcement; avoiding lever after shock = negative reinforcement/punishment.

Q15: According to Tolman, if two students in the same classroom behave differently, this is because:

A) Situational variables differ

B) Antecedent variables differ

C) Behaviour is random

D) Only reinforcement matters

Answer: B

Explanation: Antecedent variables (internal factors like motivation, age, or prior experience) explain the difference, while situational variables are the same.

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4. Situational/Applied MCQs

Q16: A student has a habit of revising at 10 pm every night. Tonight, they are tired but still revise. Which factor in Hull's equation explains this behaviour?

A) Drive (D)

B) Valence (V)

C) Habit (SHR)

D) Incentive (K)

Answer: C

Explanation: Habit (SHR) represents learned behaviour from repetition.

Q17: A rat explores a maze and learns the location of food even without reinforcement. Which neo-behaviourist concept does this illustrate?

A) Hull's Drive-Reduction Theory

B) Tolman's Latent Learning

C) Skinner's Operant Conditioning

D) Guthrie’s Law of Recency

Answer: B

Explanation: Tolman observed latent learning, where behaviour can occur without immediate reinforcement but is goal-directed.

Q18: A student avoids speaking in class because they were embarrassed previously. According to Guthrie, this is because:

A) Positive reinforcement

B) Law of recency

C) Equipotentiality

D) Fixed ratio reinforcement

Answer: B

Explanation: The last response (avoiding speaking) is most likely to be repeated.

Q19: A teacher gives a surprise quiz to encourage students to revise. This schedule represents:

A) Fixed ratio

B) Variable interval

C) Fixed interval

D) Variable ratio

Answer: B

Explanation: Variable interval provides reinforcement (quiz) after unpredictable time intervals.

Q20 (Tricky): If part of a student’s cortex is accidentally damaged and learning continues normally, which principle explains this?

A) Mass action

B) Equipotentiality

C) Law of recency

D) Operant conditioning

Answer: B

Explanation: Equipotentiality states that other parts of the cortex can compensate for damaged areas.

Neo-Behaviourists Cheat Sheet

1. Key Terms & Definitions

Term	Definition	Keywords	Small Example
Neo-Behaviourists	Psychologists after Watson who kept focus on observable behaviour but added purpose, motivation, mental factors	Observable, Purpose, Motivation	Tolman studied goal-directed behaviour in rats
Behaviourism	Psychology should study only observable actions, not introspection	Observable, Measurable	Watching rats press levers
Hull's Equation	SER = D × V × K × SHR	Drive, Valence, Incentive, Habit	Hungry student sees food (D,V,K) and habit of snacking → eats (SER)
Drive (D)	Internal need or desire that motivates behaviour	Motivation, Need	Hunger, thirst, exam preparation
Valence (V)	Strength or attractiveness of a stimulus	Intensity, Attraction	A hot pizza slice vs stale bread
Incentive (K)	Reward or goal motivating behaviour	Reward, Motivation	Studying for grades, working for salary
Habit (SHR)	Learned behaviour from repetition	Routine, Past learning	Daily 10 pm study habit
Tolman's Equation	B = f(S, A)	Behaviour = f(Situation, Antecedent)	Two students in same class behave differently (A differs)

Term	Definition	Keywords	Small Example
Situational Variables (S)	External factors influencing behaviour	Environment	Classroom, noise, temperature
Antecedent Variables (A)	Internal/personal factors influencing behaviour	Internal, Individual	Age, gender, motivation
Law of Recency	Last response in a situation is most likely repeated	Guthrie	Child pushes door unsuccessfully, then pulls → next time pulls
Operant Conditioning	Learning via consequences (reinforcement/punishment)	Skinner, Voluntary, Consequence	Rat presses lever → food reward
Positive Reinforcement	Adding pleasant stimulus to increase behaviour	Reward	Treat for good behaviour
Negative Reinforcement	Removing unpleasant stimulus to increase behaviour	Punishment avoided	Alarm stops when seatbelt is fastened
Schedules of Reinforcement	Rules for giving reinforcement	Fixed/Variable, Ratio/Interval	Fixed ratio = reward every 5 lever presses
Equipotentiality	All parts of cortex can perform similar functions	Brain Flexibility	Part of cortex damaged → other parts compensate
Mass Action	More brain tissue involved → better learning	Learning, Cortex	More cortex activated → faster maze learning
Latent Learning	Learning that occurs without immediate reinforcement	Tolman	Rats learn maze without food reward, show learning later
Neurosis (Guthrie)	Conflict of responses causing mental distress	Inner conflict	Want to speak in class but fear judgement
Curiosity / Hope / Disappointment	Mental factors affecting learning	Motivation, Emotion	Child explores toys → learns faster

2. Mnemonics & Memory Hooks

Hull's SER Equation – "Dirty Very Kooky Habit"

- **D**rive → Need
- **V**alence → Attraction
- **K** Incentive → Goal
- **SHR** → Habit

Example: Hungry student studies late → SER = D × V × K × SHR

Tolman's B = f(S, A) – "Behaviour Shapes Attitude"

- **S** = Situation (environment)
- **A** = Antecedent (internal factors)

Example: Same class, two students behave differently due to internal factors.

Skinner Reinforcement Schedules – "FVVF"

- **F**ixed Ratio – reward after fixed responses
- **V**ariable Ratio – reward after random responses
- **V**ariable Interval – reward after random time
- **F**ixed Interval – reward after fixed time

Neo-Behaviourists Overview Mnemonic – "H Tu Gu Sk La He Ha Mo"

- **H**ull
- **Tu**lman
- **Gu**thrie
- **Sk**inner
- **La**shley

- **He**bb
- **Ha**rlow
- **Mo**wrer

This helps recall major neo-behaviourists in order.

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3. Quick Comparison Table

Psychologist	Key Concept	Formula / Principle	Example
Hull	Behaviour = mathematical	SER = D × V × K × SHR	Student eats snack due to hunger, food attractiveness, reward, and habit
Tolman	Purposive behaviour	B = f(S, A)	Two students behave differently in same classroom
Guthrie	Law of Recency, Behaviourist psychotherapy	Last response repeated	Child pulls door after push fails
Skinner	Operant conditioning	Reinforcement & Punishment	Rat presses lever → food (positive reinforcement)
Lashley	Brain & behaviour	Equipotentiality & Mass Action	Part of cortex damaged → learning continues
Hebb	Brain plasticity	IQ unaffected by partial brain removal	Supports Lashley
Harlow	Curiosity affects learning	Exploration & Manipulation	Rat learns faster when curious
Mowrer	Motivation & emotion	Hope / Disappointment	Student studies more when expecting reward

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4. Quick Tips for Revision

- Hull = **mathematical & habit**

- Tolman = **goal-directed, latent learning**
- Guthrie = **last act counts, conflict = neurosis**
- Skinner = **voluntary behaviour & reinforcement schedules**
- Lashley & Hebb = **brain and learning**
- Harlow & Mowrer = **mental factors like curiosity, hope**

Example hook:

Think of **"Neo-Behaviourists are scientists watching rats, students, and brains"** – this connects Hull, Tolman, Skinner, Lashley, Hebb, Harlow, Mowrer.

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5. Small Examples for Quick Recall

Concept	Example
Drive (D)	Hunger → go to fridge
Valence (V)	Attractive pizza → triggers desire
Incentive (K)	Studying → good grades
Habit (SHR)	Daily 10 pm study → automatic behaviour
Latent Learning	Rat learns maze without reward → applies later
Law of Recency	Last successful action → repeated
Positive Reinforcement	Treat for good behaviour
Negative Reinforcement	Alarm stops when seatbelt fastened
Curiosity	Child explores toy → faster learning
