INTRO TO PSYCHOLOGY

MID SEMESTER KEY

Q1. Anny and Kapil are standing at a railway station waiting for their friend to arrive. Meanwhile, the friend comes, the two are in a deep conversation about hosting a party for their friend. It's peak hour, and the railway station is crowded with passengers, coolies and hawkers, alongside frequent announcements of the train's arrival, platform change, and other information. Despite the noisy crowd and announcements at the railway station, the two could manage to have an interesting conversation, so much so that they could hardly detect meaningful changes in train announcements, except a few, like gender or pitch changes.

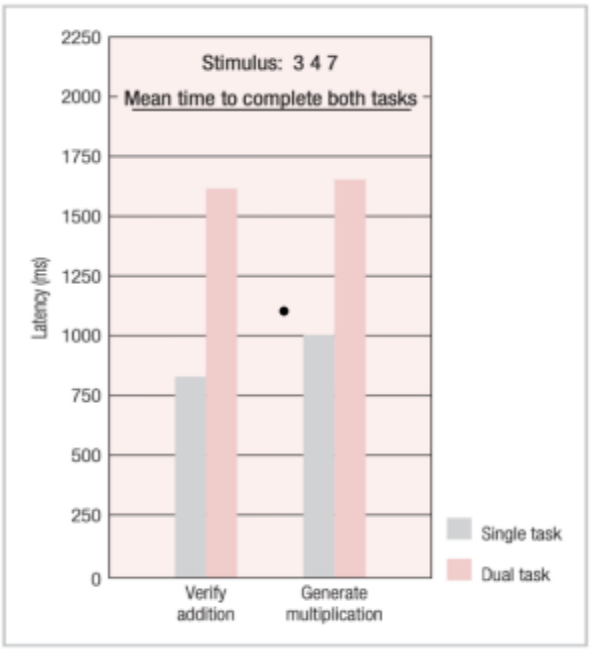
a. Briefly describe the type of attention process involved in carrying out a meaningful conversation despite the audio-visual noise. [4]

Answer:
Expected response should focus on selective attention and describe the feature of bottleneck or selectivity in focusing on relevant information while ignoring or selectively inhibiting the irrelevant feature/ information processing.

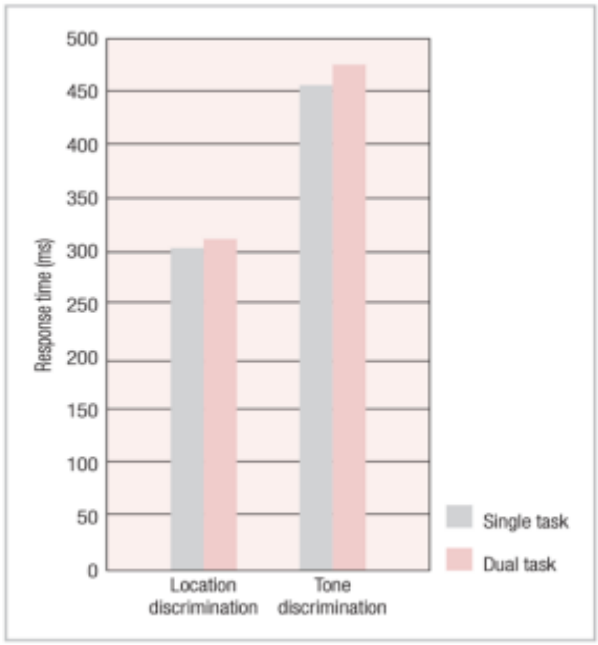
b. Use the attention model/ theory to explain the phenomenon. [6]
Answer:
Discussion on bottleneck theory or filter model is required to be discussed here. Given that the paragraph highlights the basic/ primary features analysis of the irrelevant information, it is expected to discuss the early selective attention model or early selection model of attention, which suggests meaningful processing of the selected information and primitive feature analysis of the unattended information, like color or pitch.

Q2. Below are examples of dual tasks. These two studies examine the role of multi-tasking in our task performances under varying conditions. Read both examples carefully and discuss the factors that influence dual-task performance. [5 each].

1. The figure on the right is adapted from Byrne et al. (2001), demonstrates the experiment in which participants were asked to perform two tasks: multiplication and addition. a. In the addition task, participants were asked to judge whether the first two digits add up to the third digit or not (e.g., 3+4 =7). They were asked to press the instructed key to register their response. b. In the multiplication task, participants were asked to multiply the first and third digit and report the output (3X7 = 21) verbally.



2. The figure on the right is adapted from Schumacher et al. (2001), demonstrates the experiment result in which participants were asked to perform two tasks: discriminate either the location at which the items appeared on the screen or discriminate the tone. a. In the location discrimination task, participants were required to press the left, middle, and right keys to report the letter's position. b. In the tone discrimination task, participants were required to register their responses verbally by saying 1,2,3 in correspondence to the low, medium, and high pitch.



Answer:

Students are expected to reflect on the factors that influence dual task performance. The two examples shared here depicts the efficacy of dual task performance depends on the task complexity, as the study a., shows the cost of dual task performance because both of them were demanding effort at the encoding and cognition level, though the responses for both the tasks were different and demanded different resource engagement. The task becomes challenging and serial in nature because of the overlap at encoding and cognition level. However, the results from the study b., task complexity was much lesser, it required only discrimination and no complex cognitive processing like addition and multiplication. Though the study b. demanded shared cognition at surface level, the separation at encoding helps separating the cognitive processing demand as well and alleviated the performance compared to the study a. The difference at encoding, processing, and executing enables comparatively parallel processing than serial processing in study a.

Q3. Briefly describe the Sperling task, and discuss its role in helping us understand the importance of attention in memory. [4+6]
Answer: Sperling task description (textbook, 4).
The relationship between attention and memory: when paid attention to sensory information, it improves the recall than when it couldn't be attended. Sperling, in his classic experiment, showed that participants could not perform better than chance when they were asked to freely recall the list of items immediately after presenting the information. However, after post-cueing, they could improve their performance up to or above 80%. The difference in free recall versus cued recall performance suggests that poor recall in the free recall condition was not due to poor encoding but due to poor retrieval and could be improved by attention deployment to the relevant information. In the following experiment, Sperling showed that a delay of 30 seconds leads to a significant drop in recall, suggesting a fragile nature of sensory storage.

Short Answer type Questions: Any FOUR questions.

Q1. Briefly describe the within and between/ independent group design with an example each. [2.5 each]
Within Group Design:
Each participant experiences both display designs (a and b). This is typically accomplished by presenting both designs in a randomized order to each participant. – counterbalanced manner
Pros:

1. Control for individual differences because both designs will be experienced and evaluated by the same participants.
2. Reduced error variance
3. Fewer participants
4. Capture minute differences in the design

Cons:

1. Order effects
2. Practice effect, and carryover effect

Provide an example

Between group design:

one group of participants experiences design a, and another group experiences design b.
Pros:

1. No order effect
2. Reduces carryover effect (learning) and fatigue

Cons:

1. Cannot capture minute differences.
2. more participants

Provide an example

Q2. Consider a search task that involves visual objects like a paper pin, pen, sticky note or a bottle and indicate and label the brain regions responsive to the following:
a. primary and secondary visual processing (i.e., visual objects, like colour, orientation etc.) – Blue region
b. object identification (what) – Yellow inferior region
c. object location (where) - Green Posterior Parietal region [1+2+2]

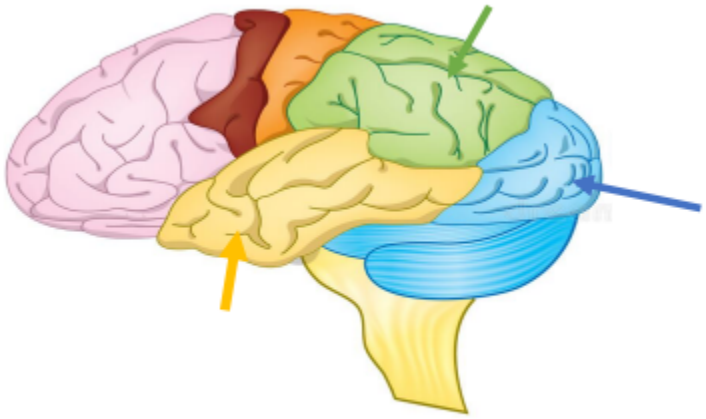
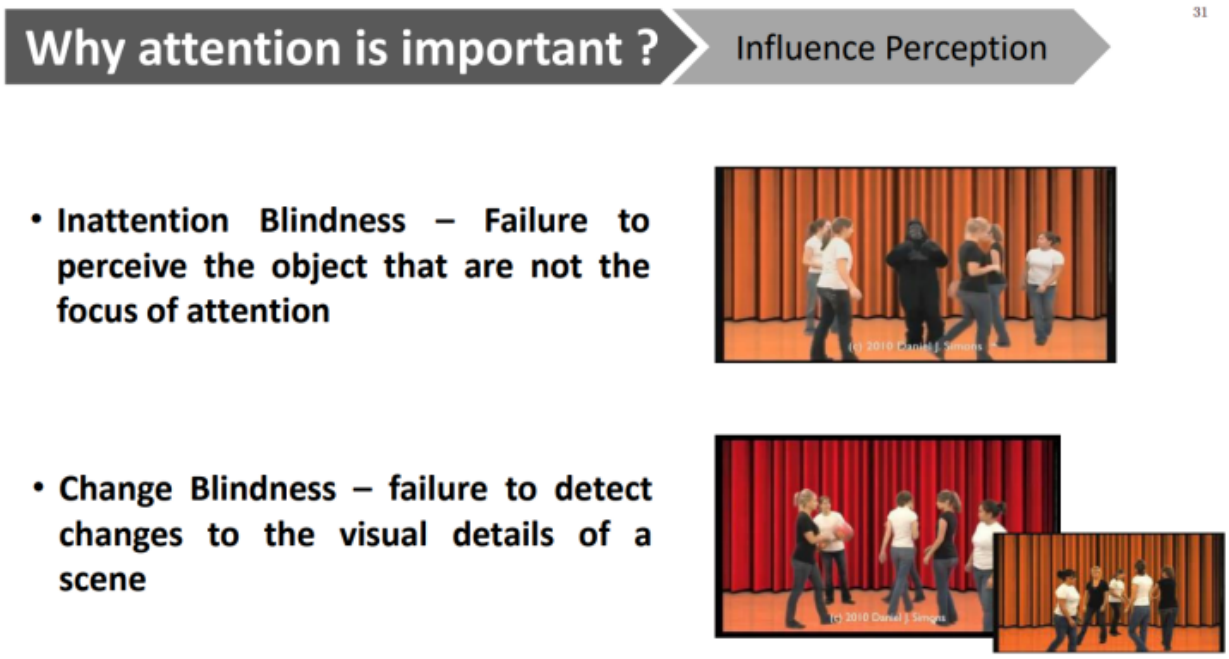


Figure 2. indicate and label the brain regions

Q3. Briefly describe the inattentional and change blindness with an example each.



Example

Q4. On your left, there are two experimental designs. Discuss the strength and limitations of the two designs. [2.5 each]

Q5. What is the role of context/ knowledge in perceptual processing? Provide an example in support of your description. [5]

Example: Seeing a Glass of Liquid

Imagine you encounter a glass filled with a clear liquid, and you want to identify what it is. The perceptual process involves multiple steps, and context and knowledge play a crucial role:

Sensory Input: Initially, you see the glass and the liquid in it, and you might also perceive the color and the way it shimmers in the light.

Context: Your prior knowledge and context are essential in this situation. If you are in a restaurant, your brain might associate the glass and the liquid with common beverages like water, soda, or wine. If you are in a chemistry lab, your context might lead you to think of chemicals or lab experiments.
Knowledge: Your general knowledge about the properties of liquids, such as their color, transparency, and viscosity, will guide your perception. You know that water is typically clear, soda is fizzy, and wine can have various colors and consistencies.

Interpretation: Based on your context and knowledge, you interpret the sensory input. You may conclude that the liquid is water, soda, or wine, depending on the context and your prior experiences. This interpretation guides your subsequent actions, such as reaching for the glass to drink or making an informed decision about what to do next.

In this example, the perceptual process is not solely based on the visual input from your eyes but heavily relies on your prior knowledge and the context in which you encounter the glass of liquid. Without context and knowledge, it would be challenging to make sense of the sensory information and identify the substance in the glass. Therefore, context and knowledge are integral to the perceptual process, helping us navigate and understand the world around us

Q6. What is Stroop Effect? What does it inform about attentional processing? [2+3]

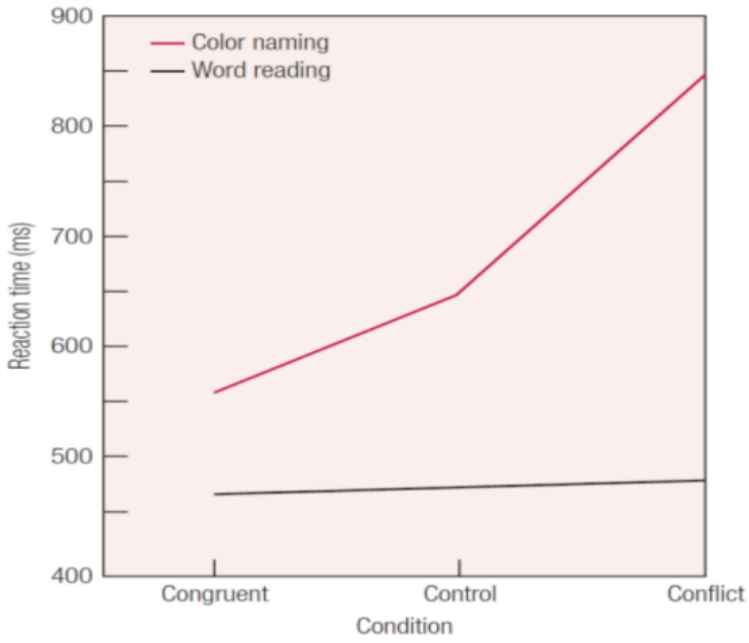


FIGURE 3.24 Performance data for the standard Stroop task. The curves plot the average reaction time of the participants as a function of the condition tested: congruent (the word was the name of the ink color); control (the word was not related to color at all); and conflict (the word was the name of a color different from the ink color). (From Dunbar & MacLeod, 1984. Reprinted by permission of the publisher. © 1984 by the *Journal of Experimental Psychology: Human Perception and Performance.*)

Reading words is a highly practiced and automatic process, while naming ink colors requires more cognitive effort and control. When these two processes conflict, it takes longer to complete the task accurately.
To perform the task successfully, individuals must selectively attend to the ink color and inhibit their automatic response to read the word