End-semester exam
Answer Key
Section A

- Small eye movements help with
    1. Retinal Stabilization
    2. Fatigue Prevention
    3. **Both**
    4. None of the above

- Voluntary attention is also known as _____ attention
  Ans: Top-down

- Robust relationship between geometrical and temporal aspects of human movement is described by–
    a. Hook's Law
    b. Fitt's Law
    c. **⅔ Power Law**
    d. Law of Reciprocity

- Which of the following is responsible for Attentional Control
    a. Straite Cortex
    b. Calcarine Sulcus
    c. Medulla Oblongata
    d. Posterior Parietal Cortex

- In the stop signal task, what is the participant's goal?
    a. **To stop executing an action as quickly as possible only when instructed to do so**
    b. To stop executing an action as quickly as possible
    c. To stop executing an action consecutive times
    d. To stop the signal only when instructed to do so

- Choice RT decreases linearly with an increase in the number of stimulus-response alternatives
    a. True
    b. False

- _____ involves painful sensations that seems to be coming from the part of the limb that is no longer there.
  Ans: Phantom Limb

- Visual information enhances cross-modal perception
    a. True
    b. False

- Amplitude errors are more difficult to correct than directional errors
    a. True
    b. False

- Humans are monocular. We see slightly different images from our left and right eye. This phenomenon is called
    a. Post Saccadic oscillation
    b. Retinal disparity
    c. Attentional blink
    d. Reduced Sensitivity

- A patient is getting tested for any possible visual impairments and is shown a cylindrical drum with rotating stripes. They report that they are unable to see the stripes. Can it be concluded that the patient has the presence of optokinetic nystagmus (OKN)?
    A. Yes
    B. No

- Both saccades and smooth pursuit eye movements reflect the cognitive state of an individual
    a. True
    b. False

- Which of the following is a precision grasping movement:
    a. Holding a coin
    b. Holding a cup
    c. Holding a knife
    d. None of the above

- If the target is moving towards the viewer, eyes move
    a. Towards each other
    b. Away from each other
    c. Remain at the same position

- What is the correct flow of Reaction Time
    a. Stimulus -> Decision -> Perception -> Response Programming -> Response
    b. Stimulus -> Response Programming ->Decision -> Perception-> Response
    c. Stimulus ->Perception -> Response programming ->Decision ->Response
    d. Stimulus -> Perception -> Decision -> Response Programming -> Response

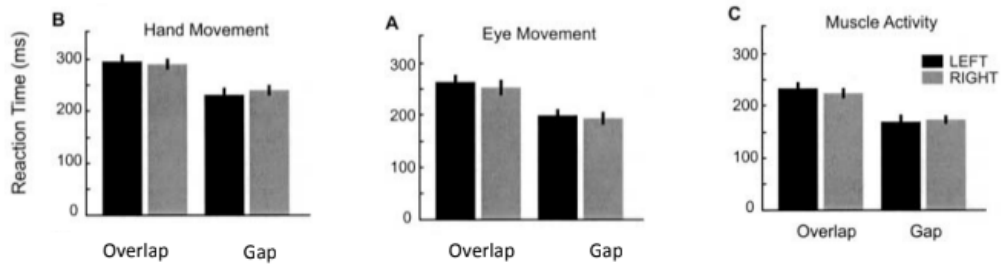
- Which of the following statements is **incorrect** regarding vergence?
    a. Retinal disparity is the main stimulus for vergence movements
    b. Line of sight is crossed in vergence eye movements
    c. Skewed eye movements are called conjugate
    d. Vergence and accommodation usually co-occur

- Which theory states that the movements of both attention and saccades are mediated by the same neural circuit?
    a. Oculomotor readiness theory
    b. Target acquisition theory
    c. Woodworth's Law
    d. Saccadic sensitivity hypothesis

- What kind of vision is necessary for MicroSaccades?
    a. Astigmatism vision
    b. Presbyopia vision
    c. Foveal Vision
    d. Farsightedness vision

- Saccades and Smooth Pursuit eye movements use the same set of muscles, and their mode of operation is also simple
    a. True
    b. False

- The following graph depicts results from an experiment that studied the relation of rapid eye and arm movements with respect to a target visual stimuli. This figure depicts the mean reaction time (RT) for eye movement, hand movement, and EMG activity for two conditions. Refer to the figure below for the following question.



Which conclusion from the study is **incorrect**?
    a. A positive correlation is observed between onset latencies for eye movement and limb EMG activity
    b. Gap effects are observed for limb EMG onset
    c. Limb EMG onset co-occurs with saccade initiation
    d. Gap effect for arm movement is not dependent on prior saccade movement

- Choice RTs increases linearly with the weighted mean to the base of the number of stimulus response alternatives. This law is known as the-
    a. Hick-Hayman Law
    b. Hook's Law
    c. Fitt's Law
    d. None of the above

- Movement planning (Saccade latency) is _____ proportional to spatial attention.
  Ans: Directly proportional

- Babies, at the age of 4 months, have full development of hand and space orientation
    a. True
    b. False

- The visual stimulus can be processed when saccade is being planned
  - **a. True**
  - b. False

- Which one have the direct control over voluntary muscle movements
  - **a. Pre-motor cortex**
  - b. Posterior parietal cortex
  - c. Supplementary motor cortex
  - d. Primary motor cortex

- The type of vision in which your eyes are not focused on the target is called
  - **a. Covert vision**
  - b. Overt vision

- As the number of tasks, to which a participant needs to respond to, increases, the reaction time:
  - **a. Increases**
  - b. Decreases
  - c. Remains the same
  - d. None of the above

- Which activity is the most preferred to improve eye-hand coordination?
  - a. Playing football
  - **b. Juggling**
  - c. Running a marathon
  - d. Wall climbing

- Saccades occur when an individual is dreaming
  - **a. True**
  - b. False

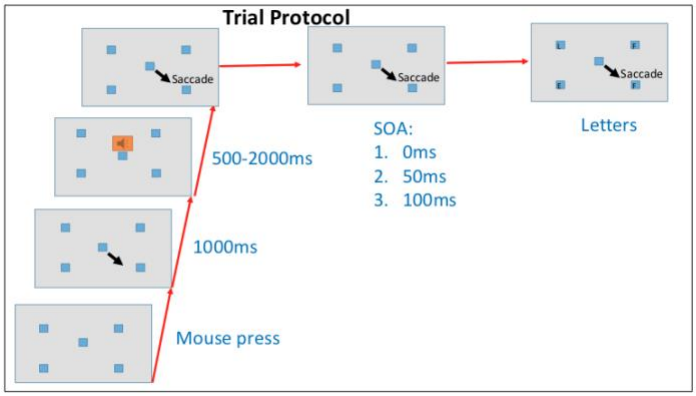
- Which of the following sensory stimuli is the McGurke effect involved in?
  - a. Proprioception
  - **b. Auditory**
  - c. Smell
  - d. Tactile

- The stop-signal task is often used to test response inhibition
  - **a. True**
  - b. False

- Which theory states that seeing a movement that is similar to the movement that is to be generated will facilitate the generation of that movement?
  Ans: Ideo-motor theory

- Individuals who write with an inverted or 'hooked' hand have their language center controlled in the left hemisphere
  - a. True
  - **b. False**

- A study was conducted by Hoffman & Subramaniam (1995) to explore the relationship between visual attention and saccadic eye movements. From their results, the following graph depicts the relationship of eye movement latencies from two conditions: movement only and dual-task blocks. With reference to the graph, answer the following question:



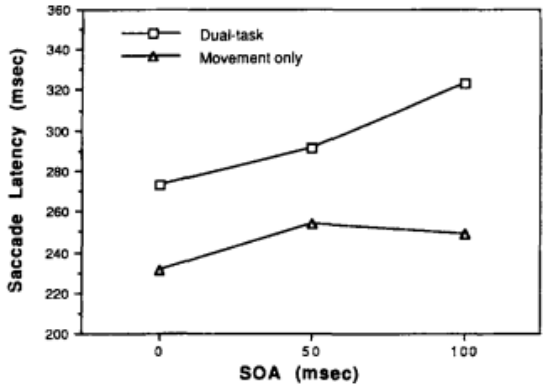


Figure 2. Mean saccadic latency in Experiment 1.

Which conclusion is **incorrect**?

a. Saccades can be predicted before initiation of target
b. Spatial attention is used in programming saccadic movements
c. The results are consistent with the cost-benefit paradigm
d. **In dual task saccade latencies are larger because of SOA.**

- Differences in absolute timing may explain why one person's writing looks different from another's.
  a. True
  b. False

- To maintain a stable perception of the world around us while we engage in normal movements throughout our day, such as walking, we use
  a. Vestibular Ocular Reflex
  b. Smooth pursuit
  c. Retinal disparity
  d. Nystagmus eye movement

- Which area of the brain is not involved in the production of saccades
    a. Somatosensory cortex
    b. Superior colliculi
    c. **Occipital lobe**
    d. Pre-Motor Cortex

- The constant *k* in the 2/3rd Power law increases as arc length increases/widens
    a. True
    b. False

- Donders Law states that the orientation of the eye is always the same when the eye is aimed in a particular direction irrespective of how the eye was brought to this position, given the head is upright and stationary.
    a. True
    b. False
    c. Not complete definition

- Involuntary fixation on things that are moving with respect to the head is called
  Ans: Optokinetic nystagmus

- The disorder where children have sentence-forming difficulties is called
    a. Apraxia
    b. Broca's aphasia
    c. Aggramatic aphasia
    d. Wernicke's aphasia

- The McGurke effect is a phenomenon in which people perceive a sound as coming from a different location other than the source
    a. True
    b. False

- Can visual information influence Pain perception?
    a. Yes
    b. No

- Which of the following is not a small eye movement:
    a. Microsaccade
    b. Saccade
    c. Tremor
    d. All of the above

- In the two visual system hypothesis, the 'Where' system is known as the ___ pathway.
  Ans: Dorsal

- Small eye movements help with retinal stabilization
    a. True
    b. False

- Which model(s) explain the 2/3rd power law?
    a. Oscillator model
    b. Minimum jerk model
    c. Both
    d. None of the above

- In planning of movements, both hands and joints can move in a straight line simultaneously.
    a. True
    b. False

- Occipital lobe of the brain helps in motion planning
    a. True
    b. False

- A patient is getting tested for any possible visual impairments and is shown a cylindrical drum with rotating vertical stripes. If the patient had the presence of optokinetic nystagmus (OKN), they would
    a. Be able to see the stripes
    b. Report seeing different colored stripes
    c. See the stripes horizontally
    d. Be unable to see stripes

- Smooth eye movements and saccades are controlled by different neural systems
    a. True
    b. False

- Hook's law describes the relationship between the geometrical and temporal aspects of human movement
    a. True
    b. False

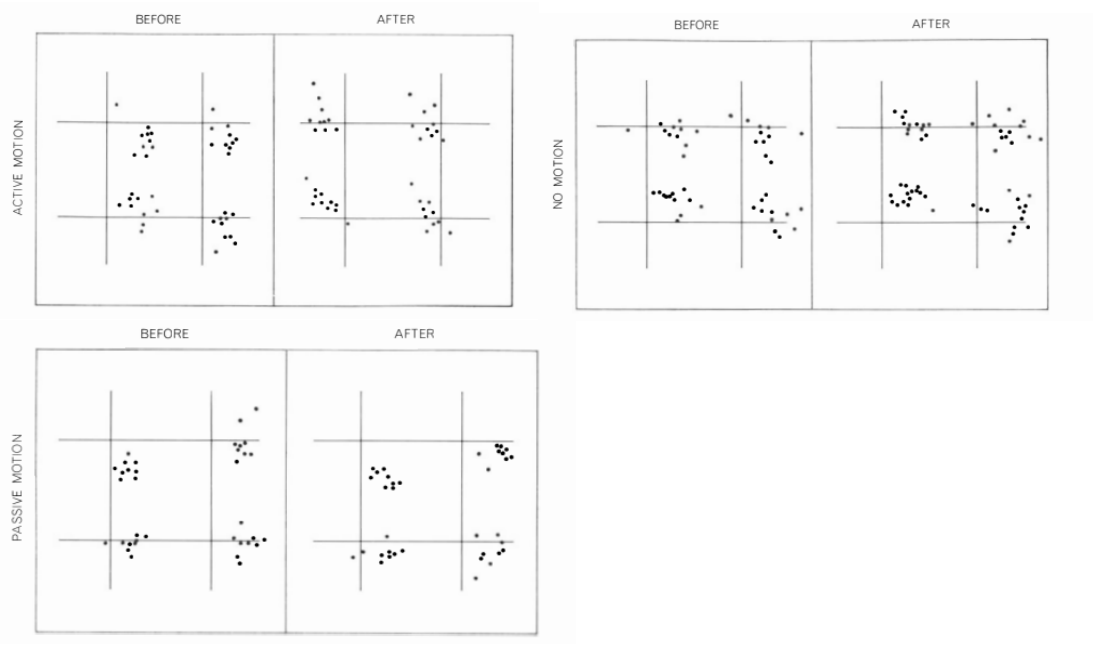
- _____ type of grasping involves movement invoked without the help of arms
  Ans: Precision grasping

- A neuropsychological syndrome related to saccades is
    a. Parkinson's disease
    b. Blind sight
    c. Night blindness
    d. Astigmatism

- Which of the following is **not** a general rule based on children drawing strokes
    a. Start at topmost point
    b. Drawing a triangle, start with the bottom and move up
    c. Start at the leftmost point
    d. Draw horizontal lines from left to right

- The following figures depict the results of an experiment that studied sensorimotor adaptation. Participants were asked to mark the corners of a square while looking through a mirror (Before), then a prism (After). The two conditions were: an active movement (B) where participants had control over how they could move their arm, and passive movement (A), where their arm movement was controlled externally and thirdly when they watch others move the arm (C). Based on the results, answer the question:

(A) (B)



(C)

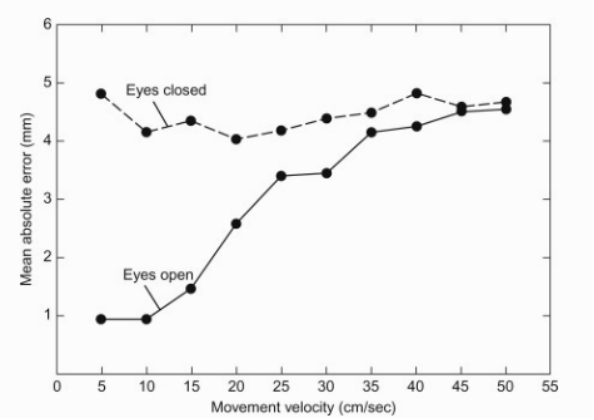
Can we conclude that simply producing movement, regardless of it being active or passive, has the potential to produce adaptation?

a. Yes
b. No

- Antagonists are activated simultaneously in smooth pursuit movements, but are activated asynchronously during saccades.
a. True
b. False

- "The eye can *point* to the target and the hand can then move to the target, drawing on information about where the gaze is directed in space. " This statement talks about which phenomenon:
a. Saccadic suppression
b. Vestibular ocular reflex
c. Ideomotor phenomenon
d. Eye-hand coordination

- The following figure depicts the results of an experiment conducted by Woodsworth where he measured the mean absolute error made by participants with the their eyes closed and open.



State true or false:
As velocity increases, the mean absolute error remains somewhat constant in participants who had their eyes closed.

a. True
b. False

- The minimum jerk model can be used as an explanation for Hook's Law
  a. True
  b. False

- Aiming and grasping are two distinctive phases of movements involved in reaching and grasping an object
  a. True
  b. False

- According to the isogeny principle, equal angles are described in equal times
  a. True
  b. False

- Frontal eye field is responsible for saccade control
  a. True
  b. False

- The age of an individual is a factor that affects simple reaction time
  a. True
  b. False