LVAI2 Study Guide for the Final Exam

The final exam for LVAI2 will be made up of at least 40 multiple choice/true false questions. In essence, the questions below address the topics that will be covered on the exam. You may use your completed Study Guide while taking the untimed exam (but no other resources).

August 2

Visual Efficiency Skills

What is visual tracing? Visual tracing is visually following lines on the environment.

In what situations is visual tracing helpful? Following railing, edges of a board, lines on a game field.

What is visual tracking? Visual tracking is visually following a moving object.

In what situations is visual tracking helpful? Following cars, people, mouse moving on a screen.

What is visual scanning? Visual scanning is visually searching for an object.

In what situations is visual scanning helpful? Locating an office, locating someone or something on a picture.

What is blur interpretation? Blur interpretation is visually recognizing people or objects based on specific features. It is not necessary to see clearly.

In what situations is blur interpretation helpful? Recognize a person that always wearing a specific collared coat.

How can you maximize visual efficiency?

Reading and Eccentric Viewing

Why can bifocals and progressive lenses be problematic for someone who has visual field loss (central or peripheral)? This type of glasses for someone who has visual field loss can be problematic because near and distance viewing will need to share

the same small visual field, reducing the visual field of each, and making it even more smaller.

How do you calculate critical print size and critical angular size? Threshold acuity distance x 1.5. It is the smallest print size that support maximum speed rate. The Threshold acuity is the distance at which a person can read the smallest print size.

Which tools/instruments can you use to assess continuous text reading? Stopwatch, tape measurer and a near acuity chart that has continuous text, like MNRead.

How can you maximize comfort and confidence when reading?

Distance and Depth Perception

What is distance perception? Distance perception is the visual ability to determine the place of an object relative to us.

In what situations is distance perception helpful? When driving.

What visual cues aid in distance perception? Speed, trees.

What is depth perception? Depth perception is the visual ability to perceive objects in the environment.

In what situations is depth perception helpful? Locating and approaching stairs.

What visual cues aid in depth perception? Contrast, markings, broken shadows and angles, street furniture.

August 3

Refractive Error, Corrective Lenses, Optics and Magnification

How can you determine if a written prescription is for myopia? Minus diopters for corrective lenses (concave lens).

How can you determine if a written prescription is for hyperopia? Plus diopters for the corrective lenses (convex lens).

How can you determine if a written prescription is for astigmatism? Presence of cylinder and axis information for corrective lenses.

How can you determine if a written prescription is for presbyopia? Presence of “ADD” (additional correction) mention for corrective lenses.

What are the implications if someone has myopia and isn’t wearing their corrective lenses? Has difficulties to see clearly for distance viewing (reading board, street signs) and squinting.

What are the implications if someone has hyperopia and isn’t wearing their corrective lenses? Has difficulties to see clearly for near viewing, fluctuating vision at near, blur or fatigue with long term reading. Can also experience blur at distance.

What are the implications if someone has astigmatism and isn’t wearing their corrective lenses? Experience visual distortion, squinting and head tilting.

What are the implications if someone has presbyopia and isn’t wearing their corrective lenses? Experience blur at near, cannot read things close (need to extend arms out to give more distance), eye strain in poor light.

How do the diopters of a plus lens affect magnification? Increase the size of an object in the central part of the lens.

How do the diopters of a plus lens affect field of view? Plus lenses reduce field of view.

How do the diopters of a plus lens affect focal distance? Plus lenses have a shorter focal distance.

How do you calculate equivalent power? Best corrected vision at near / target size. GFind close to read distance based on the target size that the person wants to read. Then calculate 1 / close to read distance (in M) to get diopter power.

Compare and contrast the four different types of magnification.

1. Relative size: Making objects bigger.

2. Relative distance: Moving closer to the objects or targets.

3. Angular magnification: Uses two lenses together to make objects appear bigger.

Optical Devices

How can you maximize clarity? Using optical devices with or without illumination with the appropriate diopter power for a person based on the needs.

In what sequence do people master the use of optical devices? Softer to harder: Technical skills -> Speed -> Comprehension.

How do you motivate children to use optical devices? Make it fun, have them use devices that looks fun like the turtle magnifier and have them play games.

How do you motivate adults to use optical devices? Show them the possibilities and the benefits that they will get by using optical devices in their daily activities.

Describe step-by-step strategies for teaching someone how to use a handheld magnifier. Place the magnifier flat on the surface, have the person look through it, and slowly have the person lift it up step-by-step until the appropriate focal distance is reached by making the surface under the magnifier clear for viewing.

Describe step-by-step strategies for teaching someone how to use a stand magnifier. Place the magnifier flat on the surface, have the person look through it, and have the person move above the magnifier to adjust their working distance until the person see the surface under the magnifier clearly, as the focal distance is set and fixed.

Describe step-by-step strategies for teaching someone how to use a full-field microscope. Have the person sit with the full-field microscope, have the person have their eyes closed, as the high magnification power can be surprising and may cause motion sickness. Have the person hold the material in front of her and then opened their eyes. Have the person move their arms back and forth to move the material until finding the appropriate distance where the surface will appear clearly.

Describe step-by-step strategies for teaching someone how to use a handheld telescope. Have the person place the ocular lens of the telescope against their eye or spectacle. Have the person look at the target, then have the person adjust the objective lens of the telescope until the target appears clearly for the person, through the telescope.

How do you calculate the focal distance for someone using a full-field microscope if they also have myopia? We need to add first the diopter of the person myopia to the diopter power of the full-field telescope, then calculate 1/D (total diopters) to get the focal distance.

How do you calculate the focal distance for someone using a full-field microscope if they also have hyperopia? We need to remove first the diopter of the person hyperopia from the diopter power of the full-field, then calculate 1/D (total diopters) to get the focal distance.

How do you calculate the focal distance of a telemicroscope that has a reading cap? To calculate the focal distance of a tele microscope we use the formula 1/D (diopters) = d (focal distance in M), however we only calculate with the diopter of the reading cap.

How do you calculate the magnification (x) a person needs for using a telescope? After calculating the diopter for the telescope, calculate which number will make to denominator down to 40.

August 4

Non-optical Devices

How can you maximize contrast? Using acetates or filters over materials, using 20/20 pens, increase polarity.

How can you maximize lighting? Using brighter light which has more lux power, using positioning by placing the light source closer to the person and near the better eye. Don’t position a light above a person as it may cause shadows.

How can you minimize glare? Using filters, using tinted glasses, outside wear hat or cap that has black color under the rims to decrease glare.

How should you conduct a sun lens evaluation? Perform the evaluation outside during problematic conditions for the person, start with a grey tinted lens, go darker and dark by decreasing the percentage of the lens until reaching a certain comfort, then introduce other colored lenses around the same percentage to obtain the best comfort of protection.

Visual Field Enhancement

How can you maximize field of view? Using reverse telescope, amorphsc lenses or prism (sector Fresnel or PELI).

How would you determine if a person is a good candidate for visual field enhancement? Persons that have hemianopia (field cut equal on the same side), advanced glaucoma (small, reduce visual field, but with functional vision) or advanced retinitis pigments ((very reduced field but with some level of visual functioning).

What impact do bifocals have on the use of a sector Fresnel prism? Not possible to use a sector Fresnel prism with bifocal lenses as it will be more blurry.

What impact do progressive lenses have on the use of a sector Fresnel prism? Not possible to use sector Fresnel prism with progressive lenses as the side is already blurry, and the addition of the prism will make it even more blurry.

What impact does a near vision only prescription on the use of a sector Fresnel prism? Using sector Fresnel prism with near vision only prescription will extend the visual field horizontally to see more elements of the environment.

What impact does a distance vision only on the use of a sector Fresnel prism? Using sector Fresnel prism with distance vision only prescription will extend the visual field horizontally to see more elements of the environment.

How is the direction of the base of a Fresnel prism determined for someone who has a hemianopic field loss? Person who has hemianopia field loss, the direction of the base of the sector Fresnel prism will be on the side of the visual field loss, on the worst functional loss.

August 5

Driving with Low Vision

Who are good candidates for low vision driving? With the new law, a person who has a minimum of 20/200 of visual acuity in their better functioning eye, who has a 120 degrees of combined or monocular field of view, a maximum of 6X bioptic telescope, and good color vision.

How do/should drivers use a bioptic device while driving? Line of sight must be parallel to the bioptic telescope, the driver can only perform vertical spotting.

What are the low vision and bioptic driving laws in your state/ country (indicate your state/country)? In France, bioptic driving is not allowed. To drive, a person needs to have a minimum of 20/40 of visual acuity in at least one eye. The visual field for both eyes should not be under 120 degrees, and non defects in the 20 degrees central field.

Low Vision Assistive Technology

Who are good candidates for video magnification? Person who requires a lot of equivalent power, who has photophobia (light sensitivity), who has decrease contrast sensitivity, who will benefit from scrolling text, who gets easily fatigued or who are motivated.

What are common features of video magnifiers? Multiple level of magnification, full color, polarity, image freeze, monitor, camera.

Compare and contrast the different categories of video magnifiers.

1. Desktop: Composed of monitor, camera, control and tray.

2. Portable: Compact, all-in-one with a screen generally between 5-7 inches.

3. Transportable: Built in one unit, can have a flexible arm with the camera to project image from a white board. Has a case to carry it around.

4. Digital: This unit has OCR, scan and print recognition capabilities.

Describe the various features of video magnifiers. Magnification up to 70x, usually flat, adjustable, size screen about 24 inches, tray, brightness, color (full color, black pr white), polarity (positive and negative), shadow masking.

Describe the various visual access features of mobile technologies.

Describe the various features of head mounted displays.

How do you motivate children to use low vision assistive technology? Make if fun, show them they will be able to read their favorite stories or comics, and play games with them.

How do you motivate adults to use low vision assistive technology? Show them the benefits of using such devices in their daily activities.