

IE-341 Section 1, CRN: 30512; Section 2, CRN: 30515; Section 3, CRN: 38299 First Semester 1433-34 H (Fall-2012) – 3(2,1,2) HUMAN FACTORS ENGINEERING

	Wednesday, Dec	Wednesday, Dec 05, 2012 (21/01/1434H)	
	MIDTERM 2 [10 POINTS]		
Name:	Student Number:	Section:	
	4	9:00 / 10:00 / 11:00	

Place the correct LETTER in the box at the right of each question [$\frac{1}{2}$ Point Each]

D

A

- 1. Using a microphone to magnify sound is an example of creating a(n)... stimulus.
 - A. complex
 - B. masked
 - C. masking
 - **D. indirect** (see slides 4-3)
 - E. direct

2. Sound is created by ... of air molecules resulting in ... change and a ... wave.

A. vibration; pressure; sine (see slides 4-4,5)

- B. scattering; pressure; sine
- C. vibration; temperature; cosine
- D. scattering; pressure and temperature; cosine
- E. vibration; pressure; cosine

3. Filters may be used to ... noise and ... of sound.

- A. remove; increase the discriminability
- B. increase; decrease the absolute identification
- **C. remove; increase the detectability** (see slide 4-11)
- D. increase; enable the localization
- E. remove; decrease the just noticeable difference



- B. frequencies < 1.5 kHz; frequencies > 3.0 kHz
- C. frequencies $< 1.0 \ kHz$; frequencies $> 3.5 \ kHz$
- D. frequencies *between* 1.0 3.0 kHz; frequencies < 1.0 kHz
- E. frequencies < 1.5 kHz; frequencies between 1.5 3.0 kHz

7. An increase in the ... sound ... the threshold of audibility of the ... sound.

С

- A. masked; decreases; masking
- B. masked; increases; masking

C. masking; increases; masked (see slide 4-9)

- D. masking; decreases; masked
- E. masking; can increase or decrease; masked



- 10. ... is the retinal center consisting of ... (cells responsible for colored, HQ vision).
 - B. optic nerve; rods
 - C. fovea; rods
 - D. optic nerve; cones
 - E. lens; cones

11. The ... point is a measure a person's It exists at ... for people with *myopia*.

E

- A. near; accommodation; infinity
- B. near; visual acuity; a point closer than infinity
- C. far; accommodation; infinity
- D. far; convergence; a point closer than infinity

E. far; accommodation; a point closer than infinity (see slide 5-9)









A. $\frac{6}{30}$ B. $\frac{20}{72}$ C. $\frac{20}{12}$ D. $\frac{6}{72}$ (see slides 5-10,11) VA = 0.20° = 12 min. \Rightarrow acuity = $\frac{1}{VA} = \frac{1}{12} = \frac{6}{72}$ E. $\frac{6}{12}$

20. For *Q19*, the min. viewable font size at a distance of 12 *ft* is... (1 *ft* = 12 *in*.)

- A. 21 *pt*
- B. 50 pt

C. 51 *pt* (see slide 5-25) $VA = 3438 \frac{H}{D} \Rightarrow$

$$H = VA \frac{D}{3438} = 12 \min\left(\frac{12 \, ft}{3438}\right) \left(\frac{12 \, in}{ft}\right) = 0.5026 \, in$$

Font Size = $0.5026 in\left(\frac{1 pt}{0.01 in}\right) = 50.26 pt$

Thus, the smallest viewable (whole) font size is 51 pt.

- D. 4 pt
- E. 5 *pt*