# HESI Admission Assessment Exam (A2)

## Test Prep HESI-A2

## Version Demo

**Total Demo Questions: 20**

**Total Premium Questions: 620**

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# Topic Break Down

| Topic | No. of Questions |
|---|---|
| Topic 1, Math | 93 |
| Topic 2, Reading | 60 |
| Topic 3, Vocabulary | 114 |
| Topic 4, Grammar | 80 |
| Topic 5, Biology | 70 |
| Topic 6, Chemistry | 74 |
| Topic 7, Physics | 10 |
| Topic 8, Anatomy and physiology | 119 |
| Total | 620 |

## QUESTION NO: 1

A rat can finish a maze in about 3 minutes. If a small backpack is put on the rat so it reduces its speed by 50%, how much longer will it take the rat to finish the maze?

**A.** 3 minutes

**B.** 6 minutes

**C.** 10 minutes

**D.** 12 minutes

## ANSWER: A

**Explanation:**

If the rats speed is reduced by 50%, then it will take the rat twice as long, or 6 minutes. This is 3 minutes longer than it took before.

## QUESTION NO: 2

Which of these sentences is written correctly?

**A.** Him likes everything except the Brussels sprouts.

**B.** Him likes everything accept the Brussels sprouts.

**C.** He likes everything accept the Brussels sprouts.

**D.** He likes everything except the Brussels sprouts.

## ANSWER: D

**Explanation:**

He is the correct pronoun to use as a subject. Accept means to receive and would not make sense in this sentence.

**Brussels is capitalized here as the vegetable is named for the city of Brussels. However, some publications choose to leave it lowercase, so you may see it written both ways.

## QUESTION NO: 3

Vitamin K is created in the:

**A.** Liver.

**B.** Lungs.

**C.** Intestinal tract.

**D.** Pancreas.

**ANSWER: C**

**Explanation:**

The intestinal tract contains bacteria that synthesize vitamin K that can be used throughout our body.

**QUESTION NO: 4**

The ability to see at a distance, in good light, does not diminish as a result of aging to the extent that other visual acuities do. Myopia, or nearsightedness, is more common to younger eyes, while presbyopia, or farsightedness, more commonly afflicts people as they age. The word presbyopia comes from Greek presbys, "old man," and opia, "eye," and names a condition in which, because the lens of the eye hardens slightly and loses elasticity as a person ages, one cannot as easily focus sharply on nearby objects. This condition leads to the familiar habit of lifting up one's glasses and bringing an object or reading material close to the face so that the eyes can more easily focus on it. The function of the lens is to accommodate different focal points so that sensory data can be correctly directed to the retina for interpretation into images by the brain. Corrective lenses, particularly bifocals or progressive lenses, adjust for the focal point aberration. In essence, they do the work that the eye can no longer do for itself.

In the context of the passage, “accommodate” means to

**A.** arrange lodging for

**B.** contain

**C.** make allowances for

**D.** excuse

**ANSWER: C**

**Explanation:**

For vocabulary-in-context questions, always look up the word to see what it means in the context of the passage. Here, we are looking for a word or phrase that means something like “facilitate the proper viewing of” the different focal points. “Make allowances for” means “adjust for” or “compensate for,” which is what lenses – either those in the eye or those in eyeglasses – must do. "Arrange lodging for," meaning “house” or “put up,” is another meaning of “accommodate” but does not apply in this context, so it is incorrect. "Excuse," meaning “remove blame from” or “disregard,” does not apply in this context either.

**QUESTION NO: 5**

What is the best description for the word elevate?

**A.** rectify

**B.** elucidate

**C.** lift

**D.** plead

**ANSWER: C**

**QUESTION NO: 6**

Oral is best defined as:

**A.** audible

**B.** constitutive

**C.** significant

**D.** by mouth

**ANSWER: D**

**QUESTION NO: 7**

A person with AB- blood should not receive blood from which other blood type?

**A.** A

**B.** O-

**C.** B

**D.** AB+

**ANSWER: D**

**Explanation:**

Those with an AB- blood type should not receive blood from those with AB+ blood. Although both

AB+ and AB- blood have A and B antigens, the person with AB- blood lacks a special protein, or “Rhesus” Factor (Rh), circulating in their blood. If they are given blood that has the Rh factor present, their body will make antibodies to this foreign substance and complications will occur. This is especially true in pregnancy situations where the mother is Rh- and the baby she is carrying is Rh+.

**QUESTION NO: 8**

Initially, scientists suspected a high dietary calcium intake of increasing the risk of kidney stones. A high intake of calcium, however, reduces the urinary excretion of oxalate, which is thought to lower the risk. As a result, the concept that a higher dietary calcium intake increases the risk of kidney stones, and the mechanism underlying their formation, required examination. Stanford researchers studied the relationship between dietary calcium intake and the risk of symptomatic kidney stones in a cohort of 35,119 men ranging in age from 40 to 75 years old who had no history of kidney stones. Dietary calcium was measured by means of a semi-quantitative food-frequency questionnaire in 1998. During four years of follow-up, 535 cases of kidney stones were documented by LifeWork analysts. After adjustment for age, dietary calcium intake was inversely associated with the risk of stones; in fact, a high calcium intake decreased the risk of symptomatic kidney stones. Surprisingly, intake of animal protein was directly associated with the risk of stone formation.

The passage suggests that in conducting this medical study, researchers

**A.** drew few conclusions beforehand on the indeterminate outcome of their scientific research.

**B.** discovered associations they had not been looking for.

**C.** had little interest in calcium's effect on organs other than the kidneys.

**D.** neglected researching how the intake of calcium can reduce urinary excretion of oxalate.

**ANSWER: B**

**Explanation:**

Among the correct inferences that can be drawn from this passage, one is that researchers discovered associations they hadn't been looking for, the cited example being "surprisingly, intake of animal protein was directly associated with the risk of stone formation."

## QUESTION NO: 9

In the formula C12H22O11, the 12 following the carbon represents 12 ____ of carbon.

**A.** atoms

**B.** neutrons

**C.** electrons

**D.** molecules

**ANSWER: A**

**Explanation:**

The number that comes after an element in a formula represents the number of atoms of that element found in that substance.

## QUESTION NO: 10

Select the best word for the blank in the following sentence.

The mountaineering group _____ looking forward to climbing K2 next year.

**A.** is

**B.** are

**C.** be

**D.** were

**ANSWER: A**

**Explanation:**

The word “group” is a collective noun so it takes a singular verb. In context, the phrase “next year” shows that they are currently looking forward to the climb, so a present-tense verb is required. "Is" is singular and presenttense.

## QUESTION NO: 11

A student is observing a chemical reaction occurring with visible bubbling. The bubbling eventually stops. The student can see that some of the original reactants are still intact inside the beaker, so he knows that not all the reactant has been used up. Therefore, the student knows he is now observing:

**A.** A failed reaction.

**B.** Equilibrium.

**C.** A decrease in temperature.

**D.** A completed reaction.

## ANSWER: B

**Explanation:**

The student is now observing equilibrium, during which reactants are forming products at the same rate that products are forming reactants.

## QUESTION NO: 12

A medical scientist wants to study the parenchyma of the kidney. This scientist would correctly be known, most specifically, as a:

**A.** biologist.

**B.** doctor.

**C.** anatomist.

**D.** histologist.

## ANSWER: D

**Explanation:**

Where biology focuses on life, in general, histology is the study of tissues. Because it is not clear whether the scientist has a degree, doctor may not be appropriate. An anatomist would be studying the structure of the body in general, and not specifically tissues of the kidney.

## QUESTION NO: 13

Which transition best completes this sentence correctly?

Sarah did not realize until after she arrived in New York that she had left her ball gown at home; ____, she was fortunate enough to find a shop that rented them by the evening.

**A.** because

**B.** while

**C.** however

**D.** after all

**ANSWER: C**

**Explanation:**

However is the correct answer because 'however' indicates that the relationship between two independent clauses is one of contrast or opposition. In this example, the first independent clause is a negative one, while the second is the positive that contrasts it.

**QUESTION NO: 14**

5 is what percentage of 40?

**A.** 12.5%

**B.** 15%

**C.** 10.5%

**D.** 25%

**ANSWER: A**

**Explanation:**

Remember always that percentage is a mathematical expression for "a part of a whole" or per 100. For problems such as this, the following formula is very useful: part/whole=percentage/100. Since we want to know what percentage of 40 is 5, simply substitute the given numbers to the formula, and so we have: 5/40=percentage/100. 0.125 × 100=percentage. The correct answer is 12.5.

**QUESTION NO: 15**

Which of the following sentences is grammatically correct?

**A.** Since the professor was excessively boring; many of his students fell asleep.

**B.** Since the professor was excessively boring, many of his students fell asleep.

**C.** Since the professor was excessively boring many of his students fell asleep.

**D.** Since the professor was, excessively boring, many of his students fell asleep.

**ANSWER: B**

**Explanation:**

This sentence is made up of an independent clause and a dependent clause. There should be a comma separating the two clauses. No other punctuation is necessary.

## QUESTION NO: 16

What are the names of the bones in the lower arm?

**A.** femur and radius

**B.** radius and ulna

**C.** clavicle and humerus

**D.** humerus and radius

**ANSWER: B**

**Explanation:**

The radius is the lateral bone that runs from the elbow to the thumb. The ulna is shorter and smaller and runs parallel to the radius.

## QUESTION NO: 17

Soon after the surgery, the patient found he had to suppress the urge to vomit. What does “suppress” mean in this context?

**A.** correct

**B.** exemplify

**C.** counter

**D.** antagonize

**ANSWER: C**

## QUESTION NO: 18

What is 80% of 500?

**A.** 380

**B.** 412

**C.** 400

**D.** 392

**ANSWER: C**

**Explanation:**

Always remember that percentage is a mathematical expression for “a part of a whole” or per 100. For this question, we know the percentage and the whole, but not the part. Simply substitute the given numbers to the formula, part/whole = percentage/100; we don’t know the part, so we call it a, and so we have: a/500 = 80/100.

Then, a = 500 × 0.80 = 400. The correct answer is 400.

If you become familiar with questions like this, you know that to get the part represented by the percentage, you simply multiply the given number (500) by the decimal form of the percentage (0.80); and quickly get 0.80 × 500 = 400.

**QUESTION NO: 19**

Researchers have developed a recording device that essentially melts into place, snugly fitting to the brain's surface. This new technology allows for closer interaction between machines and living tissue, paving the way for more advanced implantable devices. Currently, the simplest devices for recording from the brain are needle-like electrodes that can penetrate into brain tissue. More state-of-the-art devices, called micro-electrode arrays, consist of dozens of semi-flexible wire electrodes. These are usually fixed to rigid silicon grids that don't conform to the brain's shape. An ideal recording device would conform to complex curved surfaces while placing minimal stress on the tissue. The scientists chose silk as their base material because it is flexible and durable enough to withstand manipulation. The team reported that they were able to create ultrathin flexible implants that hug the brain like shrink wrap, collapsing into its grooves and stretching over its rounded surfaces. The silk base dissolves once it makes contact with the brain, allowing the array to end up tightly hugging the brain. They found that the ultrathin arrays they created can record brain activity more faithfully than thicker implants embedded with similar electronics.

Which of the following is NOT a characteristic of the silk brain recording device?

**A.** Durability

**B.** Flexibility

**C.** Different rates of dissolution

**D.** Needle-like electrodes

**ANSWER: D**

**Explanation:**

This answer is not one of the characteristics of the silk technology. It is a characteristic of an older, simpler brain recording device: "Currently, the simplest devices for recording from the brain are needle-like electrodes that can penetrate into brain tissue."

## QUESTION NO: 20

Which is not a property of metals?

**A.** thermal conduction

**B.** low density

**C.** high melting point

**D.** malleability

## ANSWER: B

**Explanation:**

Metal has a high density and melting point, is malleable, and is an excellent conductor of heat.

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