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Your free HESI A2 practice test.

20 questions. Space for your answers. Clear explanations when you are ready to check.

20 questions

No account needed

Answers at the end

Make a first attempt before you check.

Use the same question order as the online test. Choose one answer unless instructed otherwise. For select-all-that-apply items, select every correct option; for numeric items, write the number requested. The answer section starts after all 20 questions.

Your answer sheet

01 _____	02 _____	03 _____	04 _____
05 _____	06 _____	07 _____	08 _____
09 _____	10 _____	11 _____	12 _____
13 _____	14 _____	15 _____	16 _____
17 _____	18 _____	19 _____	20 _____

One point per question. Select-all-that-apply questions require the complete correct set; there is no partial credit. A 20-question score is sample accuracy, not an official result or a prediction of passing.

Prefer to answer online? <https://aipreptest.com/free-hesi-a2-practice-test/>

This booklet contains the same free sample as the website. It is independent AceltPrep educational material, not an official exam or a substitute for required course materials. Clinical content is for study, not patient-specific instructions.

READING MATERIAL / REFER BACK AS NEEDED

Your reading passages.

Keep these passages available as you answer the referenced questions. Each passage is printed once.

Passage A: Reading passage

For questions 3, 11.

On a summer afternoon, a downtown sidewalk can feel noticeably hotter than a nearby park. This difference is part of the “urban heat island” effect, in which built-up areas become warmer than surrounding rural or suburban land. Dark, hard surfaces such as asphalt, brick, and roofing absorb sunlight efficiently and store that energy. After sunset, these materials release the stored heat slowly, so city nights often stay warmer than nights in areas with more soil and vegetation.

Several factors work together to intensify the heat island. Many city surfaces have low albedo, meaning they reflect little sunlight and instead convert it to heat. Buildings and pavement also reduce airflow, slowing the natural mixing that can cool an area. In addition, “waste heat” from vehicles and air conditioners adds warmth directly to the streets. Studies commonly find that urban neighborhoods can be a few degrees warmer than nearby less-developed areas, and the contrast is often strongest on calm, clear nights. Higher temperatures can also speed chemical reactions that contribute to ground-level ozone, worsening air quality during heat waves.

Communities try to mitigate urban heat by changing how surfaces interact with sunlight and water. Tree canopy can cool neighborhoods through shade and evapotranspiration, the process by which plants release water vapor that removes heat from the air. Cities also use reflective “cool roofs” and lighter pavements to bounce more sunlight away. However, each strategy has trade-offs: trees require space and, in dry climates, careful water planning; highly reflective surfaces can increase glare; and some changes are easier on new construction than in older neighborhoods. Because no single fix addresses every cause, many plans combine approaches and target the hottest locations, such as areas around schools, bus stops, and large parking lots.

PART 1 / MAKE YOUR OWN ATTEMPT

Questions

Record your choices on the answer sheet. Check the key only after Question 20.

QUESTION 01 / Anatomy & Physiology

A patient has a severe drop in renal perfusion pressure. In the renin-angiotensin-aldosterone system, which change most directly increases sodium reabsorption in the distal nephron to help restore blood volume?

- A. Angiotensin II increases sodium reabsorption primarily in the proximal convoluted tubule
- B. Aldosterone increases sodium reabsorption in the distal convoluted tubule and collecting duct
- C. Renin directly increases sodium reabsorption in the ascending loop of Henle
- D. Antidiuretic hormone increases sodium reabsorption in the thick ascending limb of the loop of Henle

QUESTION 02 / Mathematics

A container holds 1.5 L of saline. You pour out 250 mL, then add 3/4 L of sterile water. How much liquid is in the container now (in mL)?

- A. 2000 mL
- B. 1250 mL
- C. 1325 mL
- D. 2750 mL

QUESTION 03 / Reading Comprehension

Refer to Passage A.

Which statement best expresses the main idea of the passage?

- A. Dark materials like asphalt absorb sunlight and release the stored heat slowly after sunset, keeping cities warmer at night.
- B. Urban heat islands significantly increase global sea levels by melting polar ice caps.
- C. Planting trees will always eliminate urban heat islands in every city, regardless of climate or design.
- D. Urban heat islands result from how city surfaces and activities store and add heat, and communities use multiple strategies - each with limitations - to reduce the effect.

QUESTION 04 / Vocabulary

During the meeting, the professor offered a "succinct" explanation of the assignment so students could start right away. What does the word in quotes mean?

- A. confusing and hard to follow
 - B. long and detailed
 - C. brief and clearly stated
 - D. informal and humorous
-

QUESTION 05 / Grammar

Which sentence uses commas correctly with an appositive (renaming phrase)?

- A. Dr. Smith the chief of surgery, led the morning rounds.
 - B. Dr. Smith, the chief of surgery, led the morning rounds.
 - C. Dr. Smith, the chief of surgery led the morning rounds.
 - D. Dr. Smith the chief of surgery led the morning rounds.
-

QUESTION 06 / Biology

Which statement best explains why human gametes (egg and sperm) contain 23 chromosomes instead of 46?

- A. They must combine during fertilization so the resulting zygote has a normal diploid number.
 - B. They lose half their chromosomes during mitosis.
 - C. They do not contain any genetic material from the parents.
 - D. They are produced only by the process of binary fission.
-

QUESTION 07 / Chemistry

A student compares two atoms of chlorine: chlorine-35 and chlorine-37. Both are neutral atoms. Which statement correctly describes how these two atoms differ?

- A. They have different numbers of protons but the same number of neutrons.
 - B. They have the same mass number because they are both chlorine.
 - C. They have different numbers of electrons because one is a cation.
 - D. They have the same number of protons but different numbers of neutrons.
-

QUESTION 08 / Anatomy & Physiology

A student is contrasting calcitonin and parathyroid hormone (PTH) in calcium homeostasis. Which statement best distinguishes calcitonin from PTH?

- A. PTH, released from thyroid follicular cells, lowers blood calcium by increasing calcium deposition into bone.
 - B. Calcitonin, released from the parathyroid glands, raises blood calcium by increasing renal calcium reabsorption.
 - C. Calcitonin, released from thyroid parafollicular (C) cells, lowers blood calcium primarily by inhibiting osteoclast activity.
 - D. PTH lowers blood calcium primarily by decreasing osteoclast activity and increasing urinary calcium excretion.
-

QUESTION 09 / Mathematics

A clinic asks a patient to arrive at 13:40. Check-in takes 25 minutes, the procedure lasts 1 hour 15 minutes, and recovery takes 50 minutes. If each step begins immediately after the previous one ends, what time (military time) should the patient expect to be ready to leave?

- A. 15:10
 - B. 16:10
 - C. 15:20
 - D. 16:20
-

QUESTION 10 / Anatomy & Physiology

A patient exhales as forcefully as possible after taking the deepest breath possible. Which lung volume is being measured?

- A. Vital capacity
 - B. Tidal volume
 - C. Residual volume
 - D. Inspiratory reserve volume
-

QUESTION 11 / Reading Comprehension

Refer to Passage A.

What is the author's tone in this passage?

- A. Alarmist, arguing that cities are becoming unlivable and must be abandoned.
 - B. Promotional, urging readers to buy a specific brand of reflective roofing.
 - C. Dismissive, suggesting urban heat islands are not real and do not affect air quality.
 - D. Objective and explanatory, presenting both causes and practical limitations of solutions.
-

QUESTION 12 / Mathematics

A clinic has 2.0 kg of powdered supplement. It uses 15% of the powder for a trial batch. The rest is placed into jars that hold 250 g each. How many full jars can be filled? (1 kg = 1000 g)

- A. 7 full 250 g jars
 - B. 5 full 250 g jars
 - C. 6 full 250 g jars
 - D. 6.8 jars
-

QUESTION 13 / Grammar

Which sentence avoids a double negative?

- A. The patient couldn't hardly breathe after climbing the stairs.
 - B. The patient could hardly breathe after climbing the stairs.
 - C. The patient could not hardly breathe after climbing the stairs.
 - D. The patient hadn't hardly any breath after climbing the stairs.
-

QUESTION 14 / Vocabulary

After reviewing the budget shortfall, the committee proposed several measures to "mitigate" the financial impact on students. What does the quoted word most nearly mean?

- A. reduce or lessen
 - B. postpone until a later time
 - C. make more severe
 - D. justify with reasons
-

QUESTION 15 / Anatomy & Physiology

A patient has suffered damage to the cerebellum. Which symptom would be most likely?

- A. Loss of vision in one eye
 - B. Inability to regulate heart rate and breathing
 - C. Loss of long-term memory
 - D. Loss of balance and coordination (ataxia)
-

QUESTION 16 / Biology

In a simple genetic cross, a plant with genotype Aa is crossed with another plant that is also Aa. Which statement best describes the possible offspring genotypes?

- A. They must all be Aa, identical to the parents.
 - B. They can only be AA or aa because heterozygotes are not possible.
 - C. They can be AA, Aa, or aa, giving three possible genotypes.
 - D. They all will show the recessive trait.
-

QUESTION 17 / Chemistry

Which change occurs when a neutral atom becomes a typical ion (such as Na becoming Na^+ or Cl becoming Cl^-)?

- A. The number of protons changes, but the number of electrons stays the same.
 - B. The number of electrons changes, but the number of protons stays the same.
 - C. The number of neutrons changes to match the new charge.
 - D. The mass number always changes when an ion forms.
-

QUESTION 18 / Mathematics

Solve the proportion $X:72::35:56$. What is the value of X?

- A. 45
 - B. 115.2
 - C. 40
 - D. 56
-

QUESTION 19 / Anatomy & Physiology

A nurse is tracing blood flow for a patient with mitral stenosis. Which sequence correctly describes blood flow from the right atrium to the left ventricle, including the correct valves and vessels?

- A. Right atrium → mitral valve → right ventricle → aortic semilunar valve → aorta → lungs → pulmonary veins → left atrium → tricuspid valve → left ventricle
 - B. Right atrium → tricuspid valve → right ventricle → aortic semilunar valve → pulmonary veins → lungs → pulmonary arteries → left atrium → mitral valve → left ventricle
 - C. Right atrium → tricuspid valve → right ventricle → pulmonary semilunar valve → pulmonary veins → lungs → pulmonary arteries → left atrium → mitral valve → left ventricle
 - D. Right atrium → tricuspid valve → right ventricle → pulmonary semilunar valve → pulmonary arteries → lungs → pulmonary veins → left atrium → mitral valve → left ventricle
-

QUESTION 20 / Mathematics

A disinfectant solution is mixed in a ratio of 1 part concentrate to 9 parts water. How many milliliters (mL) of concentrate are needed to make 2.5 liters (L) of solution?

- A. 225 mL
 - B. 2,250 mL
 - C. 250 mL
 - D. 278 mL
-

PART 2 / CHECK THE REASONING

Answer key & explanations

Match each number to your answer sheet. Then read the explanation, including for any answer you guessed correctly.

Question	Answer	Question	Answer
1	B	11	D
2	A	12	C
3	D	13	B
4	C	14	A
5	B	15	D
6	A	16	C
7	D	17	B
8	C	18	A
9	B	19	D
10	A	20	C

For numeric questions, the table shows the number only. The full answer below includes the requested unit.

REVIEW / UNDERSTAND THE DECIDING CLUE

Why the answers fit.

1. Renal hormone regulation

Correct answer: B. Aldosterone increases sodium reabsorption in the distal convoluted tubule and collecting duct

Aldosterone is released from the adrenal cortex in response to angiotensin II and elevated potassium. It acts on principal cells in the distal convoluted tubule and collecting duct to increase ENaC and Na⁺/K⁺ ATPase activity. This increases sodium reabsorption, and water follows osmotically, supporting restoration of blood volume.

2. Volume conversion with fractions

Correct answer: A. 2000 mL

Convert liters to milliliters: 1.5 L = 1500 mL and $\frac{3}{4}$ L = 0.75 L = 750 mL. Subtract what was poured out: 1500 mL – 250 mL = 1250 mL. Add what was added: 1250 mL + 750 mL = 2000 mL.

3. Finding a passage's main idea

Correct answer: D. Urban heat islands result from how city surfaces and activities store and add heat, and communities use multiple strategies - each with limitations - to reduce the effect.

This option captures the full scope: what heat islands are, why they happen (surfaces and waste heat), and how cities attempt to reduce them while recognizing trade-offs.

4. Vocabulary in context: succinct

Correct answer: C. brief and clearly stated

"Succinct" means expressed in few words without losing clarity or meaning. In the sentence, the professor's explanation was short but helpful enough for students to begin. That matches "brief and clearly stated."

5. Punctuating an appositive

Correct answer: B. Dr. Smith, the chief of surgery, led the morning rounds.

"The chief of surgery" renames Dr. Smith. It is extra information. Therefore, it needs a comma before and a comma after to separate it from the main sentence.

6. Haploid and diploid cells

Correct answer: A. They must combine during fertilization so the resulting zygote has a normal diploid number.

Gametes are haploid (23) so that when egg and sperm join, the zygote returns to diploid (46).

7. Isotopes and atomic structure

Correct answer: D. They have the same number of protons but different numbers of neutrons.

Isotopes are atoms of the same element, so they have the same atomic number, meaning the same number of protons. Chlorine-35 and chlorine-37 have different mass numbers, so their numbers of neutrons must differ. Because both atoms are neutral, each has the same number of electrons as protons.

8. Calcium-regulating hormones

Correct answer: C. Calcitonin, released from thyroid parafollicular (C) cells, lowers blood calcium primarily by inhibiting osteoclast activity.

Calcitonin is produced by parafollicular (C) cells of the thyroid gland. Its main physiologic effect is to lower blood calcium levels by opposing osteoclast-mediated bone resorption. By reducing osteoclast activity, more calcium stays in bone and less enters the bloodstream.

9. Calculating elapsed time

Correct answer: B. 16:10

Start at 13:40 and add 25 minutes to get 14:05. Add 1 hour 15 minutes to get 15:20. Add the 50-minute recovery period: $15:20 + 0:50 = 16:10$.

10. Lung volumes and capacities

Correct answer: A. Vital capacity

Vital capacity is the maximum amount of air that can be exhaled after a maximal inhalation. It represents the usable volume moved between full inspiration and full expiration. It includes tidal volume, inspiratory reserve volume, and expiratory reserve volume.

11. Recognizing the author's tone

Correct answer: D. Objective and explanatory, presenting both causes and practical limitations of solutions.

The passage uses neutral language, reports findings ("studies commonly find"), and acknowledges trade-offs, which indicates an explanatory, balanced tone.

12. Percentages and whole-number quantities

Correct answer: C. 6 full 250 g jars

First convert 2.0 kg to grams: $2.0 \times 1000 = 2000$ g. Find 15% used: $0.15 \times 2000 = 300$ g, so $2000 - 300 = 1700$ g remains. Divide by 250 g per jar: $1700 \div 250 = 6.8$, so 6 full jars can be filled.

13. Avoiding double negatives

Correct answer: B. The patient could hardly breathe after climbing the stairs.

'Hardly' implies 'almost not.' Therefore, it should be paired with the positive verb 'could.' 'Could hardly' correctly means 'was almost unable to.'

14. Vocabulary in context: mitigate

Correct answer: A. reduce or lessen

In this sentence, the committee is trying to limit how much students are affected financially. The quoted word means to make something less intense, harmful, or serious. "Reduce or lessen" matches that meaning most precisely.

15. Cerebellar function

Correct answer: D. Loss of balance and coordination (ataxia)

The cerebellum ('little brain') is responsible for fine motor control, balance, and coordination.

16. Predicting genetic outcomes

Correct answer: C. They can be AA, Aa, or aa, giving three possible genotypes.

A Punnett square predicts AA, Aa, and aa offspring (1 AA : 2 Aa : 1 aa).

17. Ion formation

Correct answer: B. The number of electrons changes, but the number of protons stays the same.

Ions form when atoms gain or lose electrons. The nucleus (protons and neutrons) remains unchanged in typical chemical reactions, so protons stay the same.

18. Solving a proportion

Correct answer: A. 45

Rewrite the ratios as fractions: $X/72 = 35/56$. Simplify 35/56 by dividing numerator and denominator by 7 to get 5/8. Then $X = 72 * 5/8 = 9 * 5 = 45$.

19. Tracing cardiac blood flow

Correct answer: D. Right atrium → tricuspid valve → right ventricle → pulmonary semilunar valve → pulmonary arteries → lungs → pulmonary veins → left atrium → mitral valve → left ventricle

Blood flows from the right atrium to the right ventricle through the tricuspid valve. It then exits the right ventricle through the pulmonary semilunar valve into the pulmonary arteries, travels to the lungs, and returns via the pulmonary veins to the left atrium. Finally, blood enters the left ventricle through the mitral valve.

20. Mixture ratios and metric units

Correct answer: C. 250 mL

A 1:9 ratio means there are $1 + 9 = 10$ total parts. The concentrate is 1/10 of the final volume, so $2.5 \text{ L} \times 1/10 = 0.25 \text{ L}$. Convert to milliliters: $0.25 \text{ L} \times 1,000 \text{ mL/L} = 250 \text{ mL}$.

Review one missed concept, then check it with a fresh question. Full HESI A2 preparation: <https://aipreptest.com/exams/hesi-a2/>