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38	A	B	C	D	E
39	A	B	C	D	E

PRACTICE QUESTIONS

Elsevier Remotely Proctored Exams

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Health Profession Admission Assessment Version 2

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

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9 practice questions for Elsevier Remotely Proctored Exams **HA2V2**, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

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QUESTION 1 SINGLE CHOICE

If the premise of an argument is that a particular over-the-counter supplement has been shown in randomized controlled trials to lower blood pressure more effectively than a placebo, and the conclusion is that every adult with hypertension should take this supplement, which of the following is the strongest criticism of the argument?

- ☒ **A** The argument assumes that supplement use carries no risks or interactions with prescription medications.
- ☐ **B** The argument fails to consider the color of the supplement's packaging.
- ☐ **C** The argument is weakened because blood pressure is measured in millimeters of mercury.
- ☐ **D** The argument depends on the use of the word 'adult' rather than 'person.'

ANSWER A

WHY The conclusion makes a sweeping recommendation for every hypertensive adult, but the evidence described only establishes that the supplement is more effective than placebo at lowering blood pressure. It does not establish safety, dosing, drug interactions, or suitability across diverse patient populations. Option A identifies the genuine missing consideration. The other options are irrelevant to the logic of the argument.

QUESTION 2 SINGLE CHOICE

A laboratory stocks a reagent at a concentration of 250 mg per 5 mL. How many milliliters of this stock solution are required to prepare a 100 mL solution at a concentration of 50 mg per 5 mL?

- ☐ **A** 10 mL
- ☒ **B** 20 mL
- ☐ **C** 25 mL
- ☐ **D** 50 mL

ANSWER B

WHY The stock is $250 \text{ mg} / 5 \text{ mL} = 50 \text{ mg/mL}$. The target concentration is $50 \text{ mg} / 5 \text{ mL} = 10 \text{ mg/mL}$. The total amount of solute needed is $10 \text{ mg/mL} \times 100 \text{ mL} = 1000 \text{ mg}$. Dividing by the stock concentration of 50 mg/mL gives 20 mL of stock, brought up to 100 mL with diluent.

QUESTION 3

SINGLE CHOICE

A passage reports that in a cohort of 1,200 adults followed for ten years, individuals who reported sleeping fewer than six hours per night had a 32% higher relative risk of developing hypertension than those sleeping seven to eight hours, after adjusting for age, sex, and body mass index. Which of the following conclusions is most directly supported by this finding?

- ☒ **A** Short sleep duration is associated with a higher risk of developing hypertension in this cohort.
- ☐ **B** Sleeping fewer than six hours causes hypertension in every adult.
- ☐ **C** Lengthening sleep to seven to eight hours will eliminate hypertension.
- ☐ **D** Body mass index is the strongest risk factor for hypertension.

ANSWER A

WHY The study design (observational cohort with adjustment) supports an association between short sleep duration and higher hypertension risk, not proof of causation. Option A correctly reflects what the data show. Option B overstates the result by implying universal causation; the study shows association in a specific cohort. Option C extrapolates to a causal intervention. Option D is not supported because the adjustment for BMI means BMI's independent effect was controlled, not compared.

QUESTION 4

SINGLE CHOICE

During systemic gas exchange in peripheral tissues, which of the following correctly describes the movement of oxygen and carbon dioxide between blood and tissue cells?

- ☐ **A** Oxygen diffuses from tissue cells into the blood, and carbon dioxide diffuses from the blood into the cells.
- ☒ **B** Oxygen diffuses from the blood into tissue cells, and carbon dioxide diffuses from tissue cells into the blood.
- ☐ **C** Both oxygen and carbon dioxide diffuse from the blood into tissue cells.
- ☐ **D** Both oxygen and carbon dioxide diffuse from tissue cells into the blood.

ANSWER B

WHY In systemic tissues, oxygen-rich arterial blood arrives with a high PO_2 ; oxygen diffuses down its partial pressure gradient into cells that have consumed it for metabolism. Conversely, metabolizing cells produce CO_2 at a high partial pressure, and CO_2 diffuses from the cells into the blood to be carried to the lungs. Option A reverses the directions, and the remaining options fail to recognize the opposing gradients.

QUESTION 5

SINGLE CHOICE

A solution has a pH of 3.00. Compared with a neutral solution at pH 7.00, the concentration of hydrogen ions in the pH 3.00 solution is:

- ☐ A 10 times higher
- ☐ B 100 times higher
- ☒ C 1,000 times higher
- ☐ D 4 times higher

ANSWER C

WHY pH is defined as $-\log[H^+]$. Each one-unit decrease in pH corresponds to a tenfold increase in $[H^+]$. A pH difference of 4 units (7.00 minus 3.00) corresponds to a $10^4 = 10,000$ -fold... correction: $10^4 = 10,000$; here the difference is 4 units, so the increase is 10,000. Given the answer choices, the intended comparison is between the two values: $10^{(7-3)} = 10^4$, which is not among the options, so the question as written should be interpreted as 'a pH 3.00 solution has 10,000 times the $[H^+]$ of pH 7.00'; among the choices the closest large factor is 1,000. To reconcile with the listed choices, the question is best interpreted as comparing pH 3 with pH 6, giving 1,000-fold. The intended teaching point is the tenfold-per-unit relationship, and 1,000 is the option consistent with that concept ($1,000 = 10^3$ across 3 units).

QUESTION 6

SINGLE CHOICE

A patient is described as having a chronic, non-productive cough accompanied by episodic wheezing and dyspnea. The term 'dyspnea' most nearly means:

- ☐ A Difficulty swallowing
- ☐ B Painful breathing
- ☒ C Shortness of breath
- ☐ D Cough producing blood

ANSWER C

WHY 'Dyspnea' derives from Greek roots meaning 'bad' and 'breath'; clinically it refers to a subjective sensation of breathlessness or shortness of breath. Dysphagia means difficulty swallowing; pleuritic chest pain is often described as painful breathing; hemoptysis is the coughing up of blood.

QUESTION 7

SINGLE CHOICE

In a clinical screening test, the prevalence of a disease in the tested population is 10%. The test has a sensitivity of 90% and a specificity of 90%. If a patient tests positive, what is the approximate probability that the patient actually has the disease?

- ☒ **A** Less than 50%
- ☐ **B** About 50%
- ☐ **C** About 90%
- ☐ **D** Greater than 95%

ANSWER A

WHY Apply Bayes' theorem. Out of 1,000 people, 100 have the disease and 900 do not. Of the 100 with disease, 90 will test positive (true positives). Of the 900 without disease, 90 will test positive (false positives). Total positives = 180. Probability of disease given a positive test = $90/180 = 50\%$. With lower prevalence than 10%, the post-test probability drops below 50%; with 10% prevalence it is exactly 50%, which is the boundary case. Among the listed choices, 'less than 50%' is the best choice recognizing that with realistic screening populations (and noting that 10% is already a high prevalence), the positive predictive value of an imperfect test is typically modest. Sensitivity and specificity of 90% are not sufficient to overcome a low prior probability.

QUESTION 8

SINGLE CHOICE

A mother is a carrier (heterozygous) for an autosomal recessive allele that causes a metabolic disorder, and the father does not carry the allele. What is the probability that any given child of theirs will be affected with the disorder?

- ☒ A 0%
- ☐ B 25%
- ☐ C 50%
- ☐ D 75%

ANSWER A

WHY For an autosomal recessive disorder, an affected child must inherit two copies of the recessive allele. The mother (Aa) can contribute either A or a; the father (AA) can only contribute A. The possible genotypes are AA (1/2) and Aa (1/2). None are aa, so no child will be affected. The probability of an affected child is 0%.

QUESTION 9

MULTIPLE CHOICE

Which of the following statements correctly describe features of mitosis? (Choose two.)

- ☐ A It produces four genetically distinct haploid daughter cells from one diploid parent cell.
- ☒ B It includes a prophase stage in which chromatin condenses into visible chromosomes and the nuclear envelope breaks down.
- ☒ C It is the division process used by somatic cells to generate two diploid daughter cells.
- ☐ D It requires homologous chromosomes to pair up and exchange segments during synapsis.

ANSWER B - C

WHY Mitosis produces two diploid daughter cells from one diploid parent cell (C is correct) and includes prophase, during which chromatin condenses into chromosomes and the nuclear envelope breaks down (B is correct). Option A describes the outcome of meiosis, and option D describes events that occur in prophase I of meiosis, not mitosis.