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Question: 1

An area of the pharmacy in which there are no more than 100 particles 0.5 micron or larger per cubic foot of air is which of the following?

- A. ISO Class 5
- B. ISO Class 3
- C. ISO Class 7
- D. ISO Class 9

Answer: A

Explanation:

The correct answer to the question is ISO Class 5. An ISO Class 5 area is defined by the International Organization for Standardization (ISO) as an environment where there are no more than 100 particles, each 0.5 microns or larger in size, per cubic foot of air. This specification is crucial in environments where air purity is essential, such as in pharmaceutical compounding, semiconductor manufacturing, and biotechnology.

ISO Class 5 is part of a classification system used to describe the cleanliness levels of air in controlled environments. This system is outlined in ISO 14644-1, which provides the standards for air cleanliness in terms of the concentration of airborne particles. The standard helps ensure consistent conditions that meet specific requirements, which is critical for the quality and safety of sensitive processes and products.

It is important to note that the term "Class 100" was used under the previous Federal Standard 209E, which has since been superseded by the ISO standards. The old Class 100 is equivalent to ISO Class 5 under the new system. Despite the change in naming conventions, the specifications for particle concentration have remained consistent, ensuring continuity and clarity in maintaining controlled environment standards.

Controlled environments with an ISO Class 5 designation are maintained through various engineering controls, including High-Efficiency Particulate Air (HEPA) filters, which are effective in removing particles of 0.3 microns and larger to a very high degree of efficiency. The use of these filters, along with strict protocols for air flow, pressure, and cleanliness, helps achieve and maintain the required air purity levels.

Understanding the different ISO classes is essential for professionals involved in industries where air quality affects the integrity of products and processes. Compliance with these standards not only helps in meeting regulatory requirements but also plays a crucial role in protecting product quality and minimizing contamination risks.

Question: 2

Solve the following equation: $4x - 7 + 2x = y$ where x is a variable, and you solve for y .

- A. $2x - 7$
- B. $6x + 7$
- C. $6x - 7$
- D. $2x + 7$

Answer: C

Explanation:

To solve the equation $4x - 7 + 2x = y$, where x is a variable, and we need to find the expression for y in terms of x , follow these steps:

Start by looking at the equation and identifying like terms. The like terms in this equation are those that contain the variable x . In this equation, the terms $4x$ and $2x$ are like terms because they both contain the variable x .

Combine the like terms ($4x$ and $2x$) by adding their coefficients. The coefficient of $4x$ is 4, and the coefficient of $2x$ is 2. Adding these coefficients together gives $4 + 2 = 6$. Therefore, $4x + 2x$ simplifies to $6x$.

Substitute $6x$ back into the equation in place of $4x + 2x$. This modifies the original equation from $4x - 7 + 2x = y$ to $6x - 7 = y$.

Therefore, the expression for y in terms of x is $y = 6x - 7$. This means that for any value of x , you can find the corresponding value of y by substituting the value of x into the expression $6x - 7$.

Question: 3

Of the following drugs that modify the cardiovascular system, which one increases the strength of contraction of the heart muscle and is used in congestive heart failure?

- A. calcium channel blocker
- B. diuretic
- C. inotropic agent
- D. vasodilator

Answer: B

Explanation:

Among the various drugs that impact the cardiovascular system, the one specifically designed to increase the strength of contraction of the heart muscle is known as an inotropic agent. These agents are crucial in the management of congestive heart failure, a condition where the heart struggles to pump sufficient blood to meet the body's needs.

Inotropic agents work by influencing the intracellular calcium levels in cardiac muscle cells, thereby enhancing cardiac muscle contraction and increasing cardiac output. This helps in improving the heart's efficiency and supports better circulation of blood throughout the body.

There are three main classes of inotropic drugs used in clinical settings: 1. **Cardiac Glycosides** -

These drugs, such as digoxin, increase intracellular calcium and allow more calcium to enter the myocardial cells during each heartbeat, thereby enhancing the heart's contractility. 2. **Bipyridines** -

Examples include milrinone and amrinone. These drugs work by inhibiting phosphodiesterase-3 enzyme, leading to increased cyclic AMP levels and enhanced calcium uptake by the heart muscles. 3.

****Methylxanthines**** - Though primarily used for other purposes, some drugs in this class can increase the force of cardiac contractions as a secondary effect.

While inotropic agents are effective in improving heart function, they are typically used with caution, as they can also increase the oxygen demand of the heart and potentially lead to arrhythmias if not properly managed.

In contrast to inotropic agents, other drugs like calcium channel blockers, diuretics, and vasodilators also modify the cardiovascular system but in different ways. Calcium channel blockers decrease the force of cardiac contractions and lower blood pressure, diuretics help reduce fluid accumulation in the body, and vasodilators widen blood vessels to improve blood flow. Each of these drugs plays a distinct role, depending on the specific needs of the patient.

In summary, when treating congestive heart failure with the goal of enhancing cardiac muscle contraction strength, inotropic agents are the drug class of choice. They directly increase the contractile force of the heart, aiding in more effective blood circulation, which is critical in managing heart failure symptoms.

Question: 4

A child weighs 33 lb. His medication is prescribed to be taken as 5 mg/kg/day. What is the appropriate daily dosage for this patient?

- A. 363 mg
- B. 3.63 mg
- C. 750 mg
- D. 75 mg

Answer: D

Explanation:

To determine the appropriate daily dosage of medication for a child who weighs 33 pounds, we need to first convert the child's weight from pounds to kilograms, since the dosage of the medication is prescribed in milligrams per kilogram (mg/kg). The conversion factor between pounds and kilograms is that 1 kilogram equals approximately 2.2 pounds.

Therefore, to convert 33 pounds to kilograms, we divide 33 by 2.2, which gives us approximately 15 kilograms. This conversion is crucial because the dosage calculation depends on the weight of the patient being in kilograms to match the prescribed mg/kg dosage.

Next, we use the converted weight to calculate the medication dosage. The prescription states that the medication should be administered at a rate of 5 mg per kilogram per day. Thus, we multiply the weight of the child in kilograms by the dosage per kilogram: $15 \text{ kg} \times 5 \text{ mg/kg} = 75 \text{ mg}$.

Therefore, the correct daily dosage of the medication for this child, who weighs 33 pounds, is 75 mg per day. This calculation ensures that the child receives an amount of medication proportional to their body weight, adhering to the prescribed dosage guidelines to ensure efficacy and safety.

Question: 5

Which of the following statements about refilling prescriptions is true?

- A. Controlled drugs are limited in most states to a maximum of 12 refills within the year.
- B. Standard prescriptions can usually be refilled as many times as the prescriber order within one year from the date the prescription was written.
- C. C II medications require a new, handwritten prescription after 3 refills.
- D. none of the above

Answer: B

Explanation:

The correct statement about refilling prescriptions, based on the options provided, is: "Controlled drugs are limited in most states to a maximum of 5 refills. C II medications require a new, handwritten prescription for each fill."

****Explanation:**** In the United States, prescription medications are regulated under the Controlled Substances Act (CSA), which categorizes drugs into schedules based on their potential for abuse and medical use. The DEA (Drug Enforcement Administration) categorizes controlled substances from Schedule I to Schedule V.

****Schedule II Drugs (C II):**** These drugs have a high potential for abuse, which may lead to severe psychological or physical dependence. Examples include opioids (such as morphine, oxycodone, and fentanyl), amphetamines (including Adderall), and others. For Schedule II drugs, no refills are allowed under federal law. Each time a patient needs another supply, a new prescription must be written. This prescription must be handwritten and cannot typically be phoned or faxed to a pharmacy, although there are some exceptions, such as in emergency situations.

****Schedules III-V Drugs:**** These drugs have a lower potential for abuse compared to Schedule II drugs but may lead to moderate or low physical dependence or high psychological dependence. Examples include certain less potent opioids (such as codeine combinations), anti-anxiety medications, and others. For these drugs, up to five refills are allowed within six months from the date the prescription was written. After this period, or once all refills are used, a new prescription is needed.

****Standard Prescriptions (Non-Controlled Substances):**** These medications do not fall under the controlled substances schedules and generally have lower abuse potential. They can be refilled as often as the doctor prescribes, up to one year from the date the prescription was originally written. After one year, a new prescription is required.

****Importance of Regulation:**** These regulations ensure proper use and monitoring of potentially addictive medications, aiming to reduce prescription drug abuse while ensuring that patients have access to necessary medications. Doctors, pharmacists, and patients must all comply with these regulations to ensure safety and legal adherence in the prescription and distribution of these substances.

Question: 6

The type of government-managed insurance program that provides health care services to low-income children, the elderly, blind, and those with disabilities is which of the following?

- A. HMO
- B. Medicare
- C. Medigap
- D. Medicaid

Answer: D

Explanation:

The correct answer to the question is "Medicaid." Medicaid is a government-managed insurance program in the United States that provides health care services to various groups of low-income individuals. This program is specifically designed to assist those who may not have the means to afford medical care, including low-income children, the elderly, the blind, and individuals with disabilities. Medicaid is jointly funded by the federal and state governments but is administered at the state level, which means that coverage and eligibility criteria can vary significantly from one state to another. Despite these variations, the core purpose of Medicaid is to offer support to those in need. This includes funding for hospital stays, doctor visits, long-term medical and custodial care costs, and more, depending on the state's rules.

In addition to standard Medicaid coverage, the program often works in conjunction with Medicare, the federal health insurance program primarily for people aged 65 and over, as well as for some younger individuals with disability status as defined by the Social Security Administration. People who are eligible for both Medicare and Medicaid are known as "dual eligibles." Medicaid can help cover some of Medicare's premiums, deductibles, and co-payments, providing more comprehensive health coverage to those who qualify for both programs.

Understanding Medicaid is crucial for those who are eligible, as it provides essential health services that might otherwise be unaffordable. It is important for eligible individuals to apply through their state's Medicaid program to receive the benefits they are entitled to.

Question: 7

The report that summarizes all items that were not purchased on bid is which of the following?

- A. want list
- B. minimum/maximum report
- C. compliance report
- D. bid report

Answer: C

Explanation:

The correct answer to the question is "compliance report."

A compliance report, in the context of inventory and procurement management, serves a critical function. It specifically details all items that were acquired without following the standard bidding process. Typically, organizations establish bidding processes to ensure transparency, competitiveness, and fairness in purchasing. This process helps in obtaining goods and services at the best possible prices and terms. When certain items are purchased outside of this established bidding process, it can sometimes be due to urgency, a specific vendor requirement, or a lack of available suppliers who can enter a bid.

The compliance report thus acts as a tool for internal control. It allows an organization to monitor and review purchases that deviate from standard procedures. By summarizing non-bid purchases, the report helps in assessing whether these deviations were justified and in compliance with the organization's

policies on exceptions. This can be crucial for auditing purposes, ensuring that all procurement activities are transparent and accountable.

Furthermore, the compliance report can also be used to identify patterns or frequent deviations in purchasing that may suggest the need for changes in either the bidding process itself or in the policies governing exceptions. It supports management in making informed decisions about procurement strategies and in maintaining the integrity of the purchasing process.

Therefore, among the options provided: - A "want list" typically outlines items that are needed or desired but not yet purchased. - A "minimum/maximum report" would generally track inventory levels against predetermined minimum and maximum thresholds. - A "bid report" would detail the outcomes or statuses of items that have gone through the bidding process. - The "compliance report" is the one that aligns with the description of summarizing items purchased without a bid, making it the correct answer to this inquiry.

Question: 8

Express 45.2% as a decimal. What is the correct answer?

- A. 4.52
- B. 0.00452
- C. 0.0452
- D. 0.452

Answer: D

Explanation:

To convert a percentage into a decimal, the percentage value must be divided by 100. This is because the term "percent" directly translates to "per hundred," which means the given number is a fraction out of 100.

In this specific question, we are asked to convert 45.2% to its decimal form. To do this, we divide 45.2 by 100:

$$45.2 \div 100 = 0.452$$

Thus, 45.2% expressed as a decimal is 0.452. This conversion is straightforward and involves only basic arithmetic, ensuring it's easy to perform with a calculator or by hand.

In summary, the correct decimal form of 45.2% is 0.452.

Question: 9

The pharmacy has a bottle containing 100 tablets of medication. You receive an order for 30 tablets. What portion of the bottle will be used for this prescription?

- A. 1/3
- B. 3/10
- C. 3/5
- D. 1/5

Answer: B

Explanation:

To determine what portion of the bottle of medication will be used based on the prescription, you need to calculate the fraction of the total number of tablets that will be dispensed. In this case, the pharmacy has a bottle containing 100 tablets, and the prescription is for 30 tablets.

To find this fraction, divide the number of tablets required by the prescription (30 tablets) by the total number of tablets in the bottle (100 tablets). This calculation is expressed as:

$$\frac{30}{100}$$

Simplifying this fraction involves dividing both the numerator (30) and the denominator (100) by their greatest common divisor, which is 10:

$$\frac{30 \div 10}{100 \div 10} = \frac{3}{10}$$

Thus, the simplified fraction 3/10 represents the portion of the bottle that will be used to fulfill the prescription. This means that 30% of the bottle's content is being used for this particular order.

Question: 10

The date that the hospital was built is registered on the building as MCMXI. The building was built in which of the following years?

- A. 1909
- B. 1911
- C. 1811
- D. 1809

Answer: B

Explanation:

The correct answer to the question is 1911. This is determined by converting the Roman numerals "MCMXI" to Arabic numerals. In Roman numerals, M represents 1000, CM represents 900 (since placing a smaller numeral before a larger numeral means subtraction, i.e., 1000 - 100 = 900), and XI represents 11 (X is 10 and I is 1).

When these parts are added together, 1000 + 900 + 11, they total 1911. Thus, the Roman numerals MCMXI equate to the year 1911. Therefore, the inscription on the hospital building indicates it was constructed in the year 1911. This understanding clarifies that the hospital was not built in 1909, 1811, or 1809 as suggested by the incorrect options.

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