HOSA Pharmacy Science Assessment Practice Test (Sample)

Study Guide

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Questions

1. Which medication is used for the treatment of high cholesterol?

A. Olanzapine

B. Nitrofurantoin

C. Lovaza

D. Benztropine

2. What is the process of grinding tablets or other substances into a fine powder called?

A. Trituration

B. Levigation

C. Spatulation

D. Mixing

3. How is Ezetimibe with Simvastatin primarily used?

A. To control overactive bladder

B. To treat high cholesterol

C. As a muscle relaxant

D. To relieve headaches

4. What is the primary use of an enema?

A. To treat infections

B. For bowel cleansing and evacuation

C. For oral medication administration

D. To apply medication to the skin

5. What type of drug is Zonisamide?

A. Antihypertensive

B. Anxiolytic

C. Anticonvulsant

D. Antibiotic

6. What is the maximum volume typically injected intramuscularly?

A. 1 mL

B. 2 mL

C. 5 mL

D. 10 mL

7. Which of the following medications is classified as an antipyretic?

A. Aspirin

B. Ibuprofen

C. Hydromorphone

D. Acetaminophen

8. What is the purpose of therapeutic equivalency codes?

A. To rate drugs based on popularity

B. To determine the market price of drugs

C. To assess the therapeutic equivalence of medications

D. To classify drugs based on their side effects

9. What is the primary responsibility of a pharmacy technician?

A. Dispensing prescriptions

B. Compounding medication

C. Providing patient counseling

D. Managing pharmacy inventory

10. Which thick solution is made with a large amount of sugar and water?

A. Syrup

B. Ointment

C. Suspension

D. Paste

Answers

1. C
2. A
3. B
4. B
5. C
6. C
7. D
8. C
9. A
10. A

Explanations

1. Which medication is used for the treatment of high cholesterol?

A. Olanzapine

B. Nitrofurantoin

C. Lovaza

D. Benztropine

Lovaza is a medication that contains omega-3 fatty acids, which are primarily used to reduce triglyceride levels in patients with high cholesterol. Elevated triglycerides are a type of fat found in the blood, and high levels can increase the risk of heart disease. While Lovaza specifically targets triglycerides, it can also have a positive impact on overall lipid profiles, including cholesterol levels. Olanzapine is an antipsychotic used primarily to treat conditions such as schizophrenia and bipolar disorder, rather than addressing cholesterol issues. Nitrofurantoin is an antibiotic commonly used to treat urinary tract infections and does not have any cholesterol-lowering properties. Benztropine is used to manage movement disorders related to Parkinson's disease and does not serve any function in reducing cholesterol levels. Thus, Lovaza stands out as the appropriate choice for managing high cholesterol.

2. What is the process of grinding tablets or other substances into a fine powder called?

A. Trituration

B. Levigation

C. Spatulation

D. Mixing

The process of grinding tablets or other substances into a fine powder is known as trituration. This technique involves the mechanical grinding of solid materials into smaller pieces, often using a mortar and pestle. Trituration is specifically used to achieve a uniform particle size and to increase the surface area of the powdered substance, facilitating better mixing and dissolution when incorporated into formulations. It is an essential process in pharmaceutical compounding to ensure the proper consistency and effectiveness of medication. Levigation, on the other hand, refers to the process of reducing a solid to a fine powder while wetting it with a small amount of liquid. This is different from trituration, which is typically done in a dry state. Spatulation is another method of mixing powders, where substances are blended together using a spatula, but it does not involve the grinding action that defines trituration. Mixing simply refers to combining various components and is not specific to grinding substances into a fine powder. Each of these processes serves a distinct purpose in pharmaceutical practice, but trituration is specifically recognized for creating a fine powder from solid substances.

3. How is Ezetimibe with Simvastatin primarily used?

A. To control overactive bladder

B. To treat high cholesterol

C. As a muscle relaxant

D. To relieve headaches

Ezetimibe with Simvastatin is primarily used to treat high cholesterol. This combination drug works by targeting different mechanisms to lower cholesterol levels in the body. Ezetimibe decreases the absorption of cholesterol from the intestines, while Simvastatin inhibits an enzyme involved in cholesterol production in the liver. Together, they provide an effective strategy for managing elevated lipid levels, reducing the risk of cardiovascular diseases associated with high cholesterol. Other options, such as treating overactive bladder, acting as a muscle relaxant, or relieving headaches, do not apply to this medication's intended use or pharmacological action, as these conditions are managed with different classes of medications tailored to those specific needs.

4. What is the primary use of an enema?

A. To treat infections

B. For bowel cleansing and evacuation

C. For oral medication administration

D. To apply medication to the skin

The primary use of an enema is for bowel cleansing and evacuation. Enemas involve the introduction of liquid into the rectum and colon, which helps stimulate bowel movements and can assist in the removal of stool. This can be particularly important in situations such as preparing a patient for medical examinations like colonoscopy, managing constipation, or cleansing the bowel before surgery. The effectiveness of an enema in achieving immediate results in bowel clearance makes it a valuable tool in clinical and home care settings. In contrast, the other options serve distinct purposes that do not align with the primary application of enemas. Treating infections generally involves systemic medications, while oral medication administration pertains to the ingestion of drugs for systemic access rather than localized treatment. Applying medication to the skin suggests a topical route, which is a different method of drug administration. Thus, while these options may be relevant in their own rights, they do not pertain to the established and primary function of an enema.

5. What type of drug is Zonisamide?

A. Antihypertensive

B. Anxiolytic

C. Anticonvulsant

D. Antibiotic

Zonisamide is classified as an anticonvulsant drug, which means it is primarily used to treat seizures associated with epilepsy. It works by stabilizing electrical activity in the brain and reducing the frequency of seizures. Its mechanism of action involves inhibiting sodium channels and reducing calcium currents, thereby having a calming effect on hyperexcitable neurons. In the context of the options, anticonvulsants are specifically designed for seizure management, distinguishing them from other categories of medications. Antihypertensive drugs are used to lower blood pressure, anxiolytics are intended for anxiety relief, and antibiotics are aimed at treating bacterial infections. Each of these alternatives has a different therapeutic focus and application, highlighting why they do not fit the classification of Zonisamide.

6. What is the maximum volume typically injected intramuscularly?

A. 1 mL

B. 2 mL

C. 5 mL

D. 10 mL

The maximum volume typically injected intramuscularly is generally considered to be 5 mL in adults. This is because larger volumes can lead to tissue damage and inadequate absorption of the medication, due to the limited size of the muscle and the increased risk of pain or injury. In practice, injections exceeding this volume may not be absorbed effectively or may cause discomfort to the patient. For intramuscular injections in children or smaller adults, the recommended maximum volume may be even lower, often around 1 to 2 mL, depending on the muscle being used for the injection. Generally, specific muscle groups like the deltoid allow for smaller volumes (up to about 2 mL), while larger muscle groups, such as the gluteus maximus or vastus lateralis, can accommodate larger volumes up to 5 mL.

7. Which of the following medications is classified as an antipyretic?

A. Aspirin

B. Ibuprofen

C. Hydromorphone

D. Acetaminophen

Antipyretics are medications used to reduce fever. Acetaminophen is well-known for its effectiveness in lowering elevated body temperature, making it a commonly used antipyretic. It works by acting on the hypothalamus, the part of the brain that regulates body temperature, thereby aiding the body in cooling down when a fever is present. Both aspirin and ibuprofen are also classified as antipyretics, as they can lower fever. However, acetaminophen is often singled out due to its specific safety profile, especially in children and individuals who may not tolerate the gastrointestinal side effects of NSAIDs like ibuprofen. Hydromorphone, on the other hand, is an opioid pain relief medication and does not have antipyretic properties. Therefore, acetaminophen stands out as the quintessential antipyretic you would typically recommend for its effective fever-reducing qualities without the risks associated with NSAIDs or opioids.

8. What is the purpose of therapeutic equivalency codes?

A. To rate drugs based on popularity

B. To determine the market price of drugs

C. To assess the therapeutic equivalence of medications

D. To classify drugs based on their side effects

Therapeutic equivalency codes serve the essential purpose of assessing the therapeutic equivalence of medications. These codes are used to indicate whether two or more drug products are considered therapeutically equivalent, which means they have the same clinical effect and safety profile when administered to patients under the conditions indicated in the labeling. This assessment is crucial for healthcare providers and pharmacists as it allows them to substitute one drug for another safely, especially when considering generic options. By confirming that medications are therapeutically equivalent, these codes support effective treatment outcomes while ensuring patient safety and compliance with regulatory standards. The other options do not align with the primary function of therapeutic equivalency codes. Rating drugs based on popularity does not involve clinical effectiveness or safety evaluations. Determining market prices pertains to economic factors rather than therapeutic relationships, and classifying drugs based on their side effects focuses on adverse events rather than efficacy and safety in a therapeutic context.

9. What is the primary responsibility of a pharmacy technician?

A. Dispensing prescriptions

B. Compounding medication

C. Providing patient counseling

D. Managing pharmacy inventory

The primary responsibility of a pharmacy technician is to assist pharmacists in their duties, which primarily includes dispensing prescriptions. This involves accurately preparing and delivering medications to patients, ensuring that the right medication and dosage are provided in accordance with the prescriptions written by healthcare professionals. It is essential for pharmacy technicians to have a strong understanding of medications and refill processes to support pharmacists in their critical role in patient care. While compounding medications, providing patient counseling, and managing pharmacy inventory are also important tasks that may be part of a pharmacy technician's responsibilities, they are typically secondary to the main duty of ensuring prescriptions are correctly dispensed. Dispensing is pivotal because it directly impacts patient treatment and safety, which underscores its role as the primary responsibility within the pharmacy setting.

10. Which thick solution is made with a large amount of sugar and water?

A. Syrup

B. Ointment

C. Suspension

D. Paste

A thick solution made with a large amount of sugar and water is known as syrup. Syrups are typically composed of sugar dissolved in water, and they can also contain flavorings, preservatives, or medicinal compounds. This type of solution is commonly used both as a sweetener and as a means to deliver medication in a palatable form. Ointments, on the other hand, are semi-solid preparations that usually contain medicinal substances mixed with oils or fats, making them suitable for topical applications but distinct from syrups in their composition and intended use. Suspensions are mixtures where solid particles are dispersed in a liquid but are not dissolved; they do not have the thick, sweet characteristic that defines syrups. Pastes are also semi-solid preparations but are typically thicker than ointments and may contain solid particles for specific therapeutic purposes, further distinguishing them from the sugary nature of syrup.