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Topic Break Down

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Topic 1, Medications	206
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Topic 3, Patient Safety and Quality Assurance	58
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QUESTION NO: 1

Which of the DEA Schedules contains highly addictive drugs that have no accepted medical use?

A. Sch V

B. Sch IV

C. Sch II

D. Sch I

ANSWER: D

Explanation:

Sch I is correct because Schedule I controlled substances are defined under the federal Controlled Substances Act as drugs or other substances with a high potential for abuse, no currently accepted medical use in treatment in the United States, and a lack of accepted safety for use under medical supervision. This schedule is the category intended by the question's reference to highly addictive drugs with no accepted medical use. Pharmacy technicians should recognize that DEA scheduling is a federal framework used to regulate controlled substances according to abuse potential and accepted medical use. Although the phrase "highly addictive" is informal, the key legal distinction is the combination of high abuse potential and no currently accepted medical use in U.S. treatment. Examples commonly identified by the DEA as Schedule I substances include heroin, lysergic acid diethylamide (LSD), and marijuana under federal law. For the statutory schedule definitions, see the Controlled Substances Act at 21 U.S.C. § 812. The DEA also provides an overview of controlled-substance schedules at DEA Drug Scheduling.

QUESTION NO: 2

FILL BLANK

The MSDS contains what type of information?

A. See explanation below

B. Hazard, ingredient, handling, storage, emergency, and safety information for a chemical product

ANSWER: B

Explanation:

An MSDS, now more commonly called a Safety Data Sheet (SDS), contains detailed safety information about a hazardous chemical or product. This includes the product's chemical identity and ingredients, the hazards it presents, safe handling and storage procedures, required personal protective equipment, first-aid measures, spill and fire-response information, exposure controls, and disposal considerations. In a pharmacy setting, this information helps personnel safely receive, store, use, clean up, and respond to exposures involving hazardous materials, such as certain chemicals used in compounding or cleaning. The document is intended to give workers and emergency responders practical information for preventing injury and managing an incident safely. OSHA's Hazard Communication Standard requires safety data sheets for hazardous chemicals and specifies a standardized 16-section SDS format, so staff can locate critical safety information consistently. Although "MSDS" is an older term, it refers to the same essential category of chemical-safety documentation. See OSHA's Safety Data Sheets overview and its Hazard Communication Standard.

QUESTION NO: 3

FILL BLANK

A doctor prescribes his patient Vasotec7.5 mg PO bid x 30 days. You have 5-mg tablets in stock. How many will it take to fill this script?

A. 90 tablets

ANSWER: A

Explanation:

90 tablets is correct. The prescribed strength is 7.5 mg per dose, and “PO bid” means the patient will take the medication orally twice each day. Therefore, the total daily dose is 15 mg: 7.5 mg per dose multiplied by 2 doses per day. Over a 30-day supply, the patient needs 450 mg in total: 15 mg per day multiplied by 30 days. The available stock is 5-mg tablets, so divide the total quantity of drug needed by the strength of each tablet: 450 mg ÷ 5 mg per tablet = 90 tablets. This calculation also can be viewed by determining that each 7.5-mg dose requires 1.5 tablets; at two doses daily, that is 3 tablets each day, and 3 tablets daily for 30 days equals 90 tablets. Vasotec is the brand name for enalapril maleate; product labeling identifies oral tablet dosage forms and supports using tablet strength in the quantity calculation. See the FDA labeling information through DailyMed’s Vasotec search and prescription-dispensing terminology guidance from the California State Board of Pharmacy.

QUESTION NO: 4

FILL BLANK A stat order is called in by the pharmacy by a nurse in the hospital unit. What do you do?

A. Give the phone to the pharmacist.

ANSWER: A

Explanation:

Give the phone to the pharmacist. A stat order requires immediate attention because it is intended to address an urgent patient-care need. When a nurse calls a hospital pharmacy with a medication order or information related to an order, the pharmacist must handle the professional communication and make the clinical assessment needed before the medication is dispensed. This includes evaluating the order for appropriateness, safety, allergies, interactions, dosing concerns, and any information that may require clarification with the prescriber or nursing staff. Pharmacy technicians support this process within their permitted role by promptly routing the call to the pharmacist and helping ensure the order is processed efficiently after the pharmacist has reviewed it. Timely escalation is especially important for stat medications so treatment is not delayed while preserving the pharmacist’s required oversight of medication therapy. The PTCB examination framework includes assisting the pharmacist with prescription and medication-order processing while recognizing tasks that require pharmacist involvement. ASHP also emphasizes pharmacist review and verification as a key safety component of medication-use systems in hospitals. See the PTCB CPhT Program Details and ASHP Medication Safety resources.

QUESTION NO: 5

FILL BLANK

The type of measuring device used to measure out 2.5 ml of solution would be _____.

A. See explanation below

B. A 3-mL oral syringe

ANSWER: B

Explanation:

A 3-mL oral syringe is the appropriate device for measuring 2.5 mL of an oral solution. Oral syringes provide clear mL graduations and permit the technician or caregiver to draw up a small liquid volume precisely. The best practice is to select the smallest appropriately sized calibrated measuring device that can hold the prescribed volume. Because 2.5 mL is close to the full capacity of a 3-mL syringe, this syringe provides better readability and measurement precision than a substantially larger device. It is also designed for oral administration, helping distinguish it from parenteral syringes and reducing the risk of administering a liquid by an unintended route. Accurate oral-liquid measurement is particularly important for pediatric patients and for medicines with narrow dosing ranges. The Institute for Safe Medication Practices recommends dosing oral liquid medicines in metric units and using an oral syringe when appropriate to support accurate measurement. The U.S. Food and Drug Administration likewise advises using a dosing device marked in milliliters that matches the labeled dose. See the ISMP guidance on metric-only dosing and the FDA guidance for avoiding oral-liquid medication dosing errors.

QUESTION NO: 6

Which size of needle has the largest diameter?

A. 18 Gauge

B. 16 Gauge

C. 20 Gauge

D. 14 Gauge

ANSWER: D

Explanation:

14 Gauge is correct because needle gauge is expressed using an inverse numbering system: as the gauge number decreases, the needle's outside diameter increases. Therefore, among 18 gauge, 16 gauge, 20 gauge, and 14 gauge, the 14-gauge needle has the widest bore and the largest diameter. This convention is important in pharmacy practice because needle selection affects how readily a medication can be drawn up or administered. Larger-diameter needles may be useful for withdrawing viscous solutions or when a larger fluid flow rate is required, while the appropriate needle must still be selected based on the medication, route of administration, patient factors, and product instructions. Needle dimensions may be described by gauge and length; the gauge identifies diameter, not length. The U.S. Food and Drug Administration explains that hypodermic needle gauge numbers are inversely related to needle diameter, meaning a smaller gauge number corresponds to a larger needle diameter. See the FDA's hypodermic needles information and the CDC's safe injection practices guidance.

QUESTION NO: 7

FILL BLANK Which auxiliary label would you use for this particular sig: ii gtts AU bid?

A. For the ear

ANSWER: A

Explanation:

For the ear is the appropriate auxiliary label. In this sig, *gtts* means drops, and *AU* is the standard route abbreviation for *auris utraque*, meaning both ears. The full instruction is to instill two drops in both ears twice daily: *ii* means two, and *bid* means twice daily. Because the medication is administered otically, the auxiliary label should plainly identify the ear as the intended site of administration. This gives the patient an immediate, easy-to-read route reminder at the point of use and supports safe administration, particularly because eye and ear products can both be supplied as drops. The prescription label should also retain the complete patient-specific directions, such as "Instill 2 drops into each ear twice daily." Clear labeling and directions are central to outpatient medication safety; FDA guidance emphasizes that patients need understandable directions for using medicines safely. The National Library of Medicine's DailyMed resource provides FDA-approved labeling for prescription products, including otic medications and their administration directions. See the FDA medication-error prevention information and DailyMed.

QUESTION NO: 8

FILL BLANK Of the diagnostic devices listed below, which one is used for urinalysis?

A. See explanation below

B. Diastix

ANSWER: B

Explanation:

Diastix is correct because it is a reagent test strip designed to detect glucose in urine, making it a diagnostic product used in urinalysis. The strip contains a glucose-specific enzymatic reagent system. After the reagent area is exposed to a fresh urine specimen and allowed to react for the specified time, its color is compared with the manufacturer's color chart to estimate the urine glucose concentration. Urine glucose testing may be used to support assessment and monitoring of glycosuria, including situations involving diabetes mellitus, although results must be interpreted with the patient's clinical context and any applicable laboratory procedures. For pharmacy technicians, recognizing Diastix as a urine glucose test strip helps distinguish it from devices intended for blood glucose testing or other point-of-care measurements. The product's labeling identifies it as a test for glucose in urine and provides the required collection, timing, storage, and interpretation instructions. More information is available in the DailyMed Diastix labeling search and from the MedlinePlus overview of urine glucose testing.

QUESTION NO: 9

Benazepril is classified as a:

A. Beta Blocker

B. ACE Inhibitor

C. Calcium Channel Blocker

D. Diuretic

ANSWER: B

Explanation:

Benazepril is an angiotensin-converting enzyme (ACE) inhibitor. It is administered as a prodrug and converted in the body to benazeprilat, its active metabolite. ACE inhibitors reduce the conversion of angiotensin I to angiotensin II, a potent vasoconstrictor. This action lowers vascular resistance and decreases aldosterone secretion, which supports blood-pressure reduction. Benazepril is commonly used to treat hypertension and may be used in other cardiovascular or renal clinical contexts as directed by the prescriber. Pharmacy technicians can often recognize this drug class from the "-pril" suffix, which is characteristic of ACE inhibitors. Accurate class recognition is useful for processing prescriptions, identifying therapeutic duplication, and recognizing class-related counseling and safety issues that the pharmacist may need to address, such as the potential for cough, elevated potassium, angioedema, and fetal toxicity during pregnancy. The U.S. prescribing information identifies benazepril hydrochloride as an ACE inhibitor, and MedlinePlus likewise describes its role in treating high blood pressure through ACE inhibition. See the DailyMed benazepril prescribing information and MedlinePlus benazepril drug information.

QUESTION NO: 10

If a Tadalafil 10mg/tab has a typical half life of 17.5 hours, how long will it take until the blood concentration of this dosage falls to 25% of its initial strength?

A. 70 Hours

B. 52.5 Hours

C. 35 Hours

D. 17.5 Hours

ANSWER: C

Explanation:

35 Hours is correct because a drug's half-life is the time required for its blood concentration to decrease by one-half. Starting at 100% of the initial concentration, one 17.5-hour half-life reduces the concentration to 50%. A second 17.5-hour half-life reduces the remaining 50% by half again, resulting in 25% of the original concentration. Therefore, reaching 25% requires two half-lives: 17.5 hours × 2 = 35 hours.

The tablet strength does not change this half-life calculation when the question supplies a typical half-life and asks for the fraction remaining. Tadalafil has an approximately 17.5-hour terminal half-life in healthy subjects, consistent with the value used in the calculation. This type of calculation assumes typical first-order elimination, in which the same fraction of drug is eliminated during each half-life. See the FDA prescribing information for CIALIS (tadalafil) and the pharmacokinetic overview in StatPearls: Tadalafil.

QUESTION NO: 11

While rotating stock you notice an expiration date on a bottle that reads 08/10. What is the last day that product may be used?

A. July 31, 2010

B. August 1, 2010

C. August 31, 2010

D. September 1, 2010

ANSWER: C

Explanation:

August 31, 2010 is the last day the product may be used. On manufacturer-labeled drug products, an expiration date expressed as a month and year, such as 08/10, remains valid through the final calendar day of the indicated month. Therefore, “08/10” means the product may be used through August 31, 2010, assuming it has been stored according to the manufacturer’s requirements and the package has not been compromised. It should be removed from usable inventory after that date and handled according to the pharmacy’s return, disposal, or reverse-distribution procedures.

This convention is important during stock rotation because pharmacy personnel must identify products that are already expired or approaching expiration while avoiding premature removal of products that remain within their labeled dating period. Federal current good manufacturing practice regulations state that when an expiration date is expressed only as a month and year, the product is expected to meet applicable requirements if used before the end of that month. See 21 CFR 211.137, Expiration dating. The FDA also provides information on how expiration dates support safe medication use in its guidance on expired medicines.

QUESTION NO: 12

FILL BLANK Syrup of ipecac is indicated for what type of result?

A. Emesis

ANSWER: A

Explanation:

Emesis is the intended result historically associated with syrup of ipecac. Emesis means vomiting. Ipecac contains emetine and cephaeline, substances that provoke vomiting through local gastric irritation and stimulation of the chemoreceptor trigger zone. Thus, in a medication-knowledge fill-in-the-blank context, “Emesis” correctly identifies the pharmacologic effect the product was designed to produce.

In current practice, this item should be understood as a historical medication-use question rather than guidance for poisoning treatment. Syrup of ipecac is no longer routinely recommended for suspected poison ingestion because induced vomiting has not been shown to improve outcomes and may create risks, including aspiration or delayed use of more effective care. The American Academy of Pediatrics advises that ipecac should no longer be used routinely as a home intervention for poisoning, and Poison Control recommends contacting a poison center for individualized advice rather than attempting to induce vomiting. See the American Academy of Pediatrics policy statement and Poison Control guidance on ipecac.

QUESTION NO: 13

If 100 tablets cost 122.00, how much does each tablet cost?

A. $.12

B. $1.22

C. $12.20

D. $.012

ANSWER: B

Explanation:

The correct answer is **$1.22**. Unit cost is calculated by dividing the total cost by the number of tablets: $122.00 ÷ 100 tablets = $1.22 per tablet. Dividing by 100 moves the decimal point two places to the left, converting 122.00 into 1.22. This type of calculation is essential in pharmacy practice because technicians may need to determine the acquisition cost per dosage unit when comparing package sizes, processing inventory, estimating costs, or assisting with medication pricing calculations. The result should be expressed in dollars and cents because the question asks for the cost of one tablet. A quick check confirms the result: 100 tablets multiplied by $1.22 per tablet equals $122.00, which matches the stated total package cost. For additional guidance on calculating unit prices, see the Consumer.gov unit-pricing overview and the Math Is Fun guide to dividing decimals.

QUESTION NO: 14

FILL BLANK

If the infusion rate of an IV is 1000 ml over 10 hours and the drop factor is 15 gtt/ml, what is the drops per minute?

25 gtt/min

A.

B. 25 gtt/min

ANSWER: B

Explanation:

25 gtt/min is correct. To calculate an intravenous infusion rate in drops per minute, first convert the total infusion time to minutes: 10 hours × 60 minutes per hour = 600 minutes. Next, determine the total number of drops to be administered by multiplying the volume by the tubing drop factor: 1,000 mL × 15 gtt/mL = 15,000 drops. Finally, divide total drops by total minutes: 15,000 gtt ÷ 600 min = 25 gtt/min. This calculation uses the standard gravity-infusion formula: gtt/min = (total volume in mL × drop factor in gtt/mL) ÷ time in minutes. The drop factor is specific to the administration set and must be included so that the volume ordered is accurately translated into drops for manual regulation. Pharmacy technicians should calculate the rate carefully and communicate or document it according to facility policy, while recognizing that IV administration and rate adjustments are performed within the authorized scope of practice and applicable supervision requirements. For further discussion of IV flow-rate calculations, see StatPearls: Intravenous Fluid Therapy and OpenStax Pharmacology: Intravenous Medications.

QUESTION NO: 15

A DEA-registered reverse distributor is used by a pharmacy primarily to:

A. Receive controlled substances for destruction or disposal

B. Prescribe controlled substances to patients

C. Administer controlled substances in a hospital

D. Manufacture controlled substances for retail sale

ANSWER: A

Explanation:

Receive controlled substances for destruction or disposal is correct. A reverse distributor is registered with the DEA to receive controlled substances from pharmacies and other registrants for the purpose of return, destruction, or other authorized disposal. This provides a compliant method for handling expired, damaged, unwanted, or otherwise unusable controlled-substance inventory.

Pharmacies must follow federal requirements, state law, and company procedures when transferring controlled substances to a reverse distributor. Documentation of the transfer is necessary to maintain accountability for controlled-substance inventory. DEA guidance on controlled-substance disposal is available at DEA Drug Disposal Information.

QUESTION NO: 16

FILL BLANK

The term half life refers to _____.

The amount of time it takes a chemical to be decreased by half of its strength.

A. the time required for the amount or concentration of a drug in the body to decrease by 50%

ANSWER: A

Explanation:

The correct completion is “the time required for the amount or concentration of a drug in the body to decrease by 50%.” In pharmacokinetics, half-life is a time measurement describing the rate at which a drug is eliminated from the body. For most drugs that follow first-order elimination, each half-life reduces the remaining drug amount by one-half: after one half-life, about 50% remains; after two half-lives, about 25% remains; and so forth. Pharmacy personnel use half-life concepts when interpreting medication timing, understanding when drug concentrations decline, and recognizing why several half-lives are generally needed for a medication to approach steady-state concentrations or to be substantially cleared after discontinuation. The term does not mean that a drug’s therapeutic effect necessarily ends at that exact time; rather, it specifically describes the decline in the amount or plasma concentration of the drug. The wording “amount or concentration” is important because half-life may be calculated from measured drug concentrations in blood or from the amount of drug remaining in the body. See the pharmacokinetic overview in StatPearls: Pharmacokinetics and the FDA’s Drug Development Process resource.

QUESTION NO: 17

FILL BLANK A prescription for a buccal tablet would be labeled ____

A. Place against the inside of the cheek

ANSWER: A

Explanation:

“Place against the inside of the cheek” is correct because buccal administration places a medication in the space between the cheek and gum, where it dissolves and is absorbed through the buccal mucosa. This is an oral transmucosal route, meaning the medication is intended to act through absorption across the lining of the mouth rather than being swallowed immediately like a conventional oral tablet. A clear auxiliary label is especially important for buccal tablets because it tells the patient exactly where to place the dosage form and supports safe, effective administration. The patient should allow the tablet to dissolve as directed and follow product-specific instructions regarding eating, drinking, or moving the tablet. Buccal

administration can allow medication to enter systemic circulation without first passing through the gastrointestinal tract. Merck Manual describes buccal administration as placing a drug between the gums and cheek for absorption through the oral mucosa: Merck Manual: Drug Administration and Kinetics. The U.S. National Library of Medicine also provides patient instructions for buccal medicines that direct placement between the gum and cheek: MedlinePlus Drug Information.

QUESTION NO: 18

FILL BLANK Preservative-free drugs must be used when drugs will be injected by which route of administration?

A. Intrathecal

ANSWER: A

Explanation:

Intrathecal is correct because this route delivers a medication directly into the cerebrospinal fluid in the subarachnoid space surrounding the spinal cord. Drugs intended for intrathecal administration must be specifically formulated and labeled for that use, including being sterile and preservative-free. Preservatives that may be acceptable in some multidose injectable products can be neurotoxic when introduced into cerebrospinal fluid. Because the central nervous system is exceptionally sensitive to contaminants and excipients, using a product that contains a preservative can cause severe neurologic injury, including arachnoiditis, nerve damage, or other serious adverse effects.

Pharmacy technicians should carefully verify the dosage form, route, labeling, and storage requirements when preparing or selecting medications for intrathecal use. The product label should explicitly indicate that it is preservative-free and suitable for the intended route; a sterile injectable product is not automatically appropriate for intrathecal injection. USP guidance for compounded sterile preparations recognizes intrathecal administration as a high-risk route requiring strict controls to prevent patient harm. See USP General Chapter <797> resources and the FDA's drug-safety information for related safety principles.

QUESTION NO: 19

You receive a prescription with the sig: Amoxil 500mg 1tab PO TID X10D. Which of these is most likely their condition?

A. Urinary Tract Infection

B. Hypertension

C. Staph Infection

D. Acid Reflux

ANSWER: A

Explanation:

The most likely condition is **Urinary Tract Infection**. The sig translates to amoxicillin (Amoxil) 500 mg, take one tablet by mouth three times daily for 10 days. Amoxicillin is an aminopenicillin antibiotic used to treat susceptible bacterial infections, including infections of the genitourinary tract. The prescribing information specifically includes genitourinary tract infections caused by susceptible organisms such as *Escherichia coli*, *Proteus mirabilis*, and *Enterococcus faecalis*. A 500-mg dose given every eight hours is a labeled adult dosing regimen for more severe infections, and a 10-day duration is consistent with a traditional antibiotic course when a prescriber has selected amoxicillin based on organism susceptibility, culture results, patient-specific factors, or local resistance data. For a pharmacy technician, recognizing the abbreviations is central: "PO" means by mouth, "TID" means three times daily, and "X10D" means for 10 days. This prescription therefore represents an oral antibiotic regimen most consistent with treatment of a susceptible urinary tract infection. See the DailyMed amoxicillin prescribing information and the FDA amoxicillin label.

QUESTION NO: 20

FILL BLANK

In this formula how much talc is needed to fill 120 grams?

nupercainal ointment - 4% zinc oxide - 20% talc - 2%

A. 2400 mg

ANSWER: A

Explanation:

2400 mg is the amount of talc required. The formula specifies talc at 2%, meaning talc must constitute 2% of the final 120 g preparation by weight. Convert the percentage to a decimal (0.02), then multiply it by the total intended quantity: 120 g × 0.02 = 2.4 g talc. Because the answer is expressed in milligrams, convert grams to milligrams using 1 g = 1,000 mg: 2.4 g × 1,000 mg/g = 2,400 mg. This is a standard percentage-strength calculation for a weight-in-weight semisolid preparation. The percentage identifies the proportion of ingredient in the final total product, so the calculation uses the requested final fill weight of 120 g. Accurate calculations and unit conversions are essential in nonsterile compounding to ensure that the final preparation has the intended strength and quantity. The FDA provides information on pharmacy compounding at FDA: Compounding and the FDA, and the National Library of Medicine's metric conversion reference is available through NCBI Bookshelf.

QUESTION NO: 21

FILL BLANK What is not directly related to a drug toxicity of Nitroglycerin?

A. Projectile vomiting

ANSWER: A

Explanation:

Projectile vomiting is the best completion because it is not a characteristic toxicity finding directly associated with nitroglycerin. Nitroglycerin toxicity primarily reflects excessive vasodilation and, in substantial overdose, possible methemoglobinemia. Clinical evaluation therefore focuses on effects such as profound hypotension, syncope, headache, dizziness, weakness, altered mental status, tachycardia or bradycardia, dyspnea, and cyanosis or other signs of impaired oxygen delivery when methemoglobinemia occurs. Although a patient may experience nonspecific nausea or vomiting in many illnesses or during severe hypotension, the distinctive description "projectile vomiting" is not a recognized direct toxic effect used to identify nitroglycerin overdose. In pharmacy practice, this distinction helps technicians recognize that toxicity information should be based on documented adverse-effect and overdose profiles rather than on a symptom descriptor that is more suggestive of other clinical processes. The nitroglycerin monograph in StatPearls describes overdose manifestations and the potential for methemoglobinemia. Official product information can also be reviewed through the DailyMed nitroglycerin listings.

QUESTION NO: 22

FILL BLANK

When a drug is recalled and is considered a Class I, this means what?

This is the highest level of recall for products that could cause serious illness or may even be fatal.

A.

B. This is the highest level of recall for products that could cause serious illness or may even be fatal.

ANSWER: B

Explanation:

A Class I recall is the highest FDA recall classification. It applies when there is a reasonable probability that using, or being exposed to, a violative product will cause serious adverse health consequences or death. For a pharmacy technician, this classification signals an urgent patient-safety issue: the recalled drug should be promptly identified in inventory, removed from active stock, segregated according to pharmacy procedures, and handled according to the manufacturer's or wholesaler's recall instructions. The recall notice supplies the affected product details, such as the drug name, strength, dosage form, National Drug Code, lot number, expiration date, and distribution information, so staff can determine whether their inventory is involved. FDA recall classifications describe the level of health hazard associated with the recalled product; they do not necessarily indicate that every unit has caused harm. The statement "This is the highest level of recall for products that could cause serious illness or may even be fatal" accurately expresses the meaning of a Class I recall. FDA's recall overview is available at FDA Industry Guidance for Recalls, and the formal Class I definition appears in 21 CFR § 7.3.

QUESTION NO: 23

What must be found on all controlled substance prescriptions?

A. Pharmacy DEA number

B. Physician's business license number

C. Physician's DEA number

D. Physician's license number.

ANSWER: C

Explanation:

Physician's DEA number is the best answer because a prescription for a controlled substance must identify the prescribing practitioner through the practitioner's DEA registration number. Federal controlled-substance prescription requirements specify that a written prescription must include the practitioner's name, address, and DEA registration number, along with required patient, medication, directions, and issuance-date information. This identifier connects the prescription to a practitioner authorized to prescribe controlled substances and enables pharmacies, regulators, and prescription-monitoring systems to verify the prescriber's authority and maintain accountability throughout the controlled-substance dispensing process.

In practice, the term "physician's DEA number" is commonly used in pharmacy settings, although other appropriately registered prescribers, such as certain nurse practitioners or physician assistants, may also issue controlled-substance prescriptions within the scope of their authority. Limited federal exceptions can apply to specific institutional practitioners, but for a general PTCB-style question, the prescriber's DEA number is the required controlled-substance identifier being tested. Pharmacy technicians should recognize this as essential prescription information and refer questions or discrepancies to the pharmacist according to pharmacy policy. See 21 CFR § 1306.05 and the DEA's Practitioner's Manual.

QUESTION NO: 24

FILL BLANK

Referring patients to PharmD

A. Questions requiring pharmacist judgment, including medication-interaction, contraindication, adverse-effect, and disease-state questions

ANSWER: A

Explanation:

Questions requiring pharmacist judgment, including medication-interaction, contraindication, adverse-effect, and disease-state questions, should be referred to the PharmD. Pharmacy technicians play an essential role in gathering patient information, processing prescriptions, and recognizing when an issue needs escalation, but they do not independently provide clinical counseling or make decisions about the appropriateness or safety of drug therapy. A pharmacist must evaluate patient-specific factors such as current medications, allergies, medical conditions, laboratory information when

applicable, dosing, and the potential clinical significance of an interaction. For example, a question about whether a medication is safe with warfarin, whether a decongestant is appropriate for a patient with hypertension, or how foods may affect a medication's use requires clinical assessment and pharmacist intervention. This referral protects patients and ensures that counseling is provided within the pharmacist's professional scope. The PTCB examination content specifically expects technicians to recognize situations that require pharmacist intervention. See the PTCE Content Outline and the FDA's guidance on safe use of medicines.

QUESTION NO: 25

Which of the following drugs would not be used to treat seizures?

A. Topamax

B. Depakote

C. Lamictal

D. Tramadol

ANSWER: D

Explanation:

Tramadol is the correct answer because it is an opioid analgesic used to manage pain, not an antiseizure medication. Its therapeutic role is pain control through opioid-receptor activity and effects on norepinephrine and serotonin reuptake. Importantly for pharmacy practice, tramadol can increase seizure risk, including when it is taken at recommended doses. This risk is especially relevant in patients with epilepsy or a history of seizures and in patients receiving medicines that lower the seizure threshold. Therefore, tramadol would not be selected as treatment for a seizure disorder; rather, a pharmacy technician should recognize its seizure warning when processing prescriptions, identifying potential safety concerns, and referring clinical questions to the pharmacist.

The FDA-approved prescribing information includes a warning that tramadol may increase the risk of seizures. DailyMed's official drug-label information likewise identifies tramadol as a pain medication and documents the seizure-risk warning. See the FDA prescribing information for tramadol and the DailyMed tramadol drug information.

QUESTION NO: 26

When stocking medication inventory, the process of placing products with the earliest expiration date in front is called:

A. First-in, first-out

B. First-expired, first-out

C. Perpetual inventory

D. Cycle counting

ANSWER: B

Explanation:

First-expired, first-out is correct. First-expired, first-out, commonly abbreviated FEFO, is an inventory-control method in which products with the earliest expiration dates are used or dispensed before products that expire later. This helps reduce medication waste and decreases the risk that expired products will remain in active inventory.

Technicians should inspect stock for short-dated or expired products, rotate inventory as shipments are received, and remove expired medications according to pharmacy policy. FEFO differs from first-in, first-out because the expiration date, rather than the date received, determines which product should be used first. The FDA provides information regarding drug expiration dates and storage at Don't Be Tempted to Use Expired Medicines.

QUESTION NO: 27

FILL BLANK

When adding weights to a Class A balance, you should use tweezers because?

A. The oils from your skin will dirty and alter the actual weights.

ANSWER: A

Explanation:

The oils from your skin will dirty and alter the actual weights is correct because Class A balances are used for highly accurate pharmaceutical weighing, where even very small changes in a standard weight can affect the measured mass. Fingerprints can deposit skin oils, moisture, salts, and other residues on calibration weights. Those deposits may change a weight's effective mass or contribute to corrosion over time, reducing the reliability of subsequent measurements. Tweezers allow the pharmacy technician to place and remove small weights without directly touching them, helping preserve their cleanliness and accuracy. Proper handling is therefore part of maintaining the integrity of the balance and ensuring that compounded preparations contain the intended quantities of ingredients. Weights should also be kept clean, stored appropriately, and handled carefully to avoid damage or contamination. NIST guidance on mass standards emphasizes careful handling and control of contamination because the condition of weights is essential to measurement accuracy. See the NIST Office of Weights and Measures standard operating procedures and NIST's overview of weights and measures laboratory metrology.

QUESTION NO: 28

Which route of administration will give the highest blood concentration level?

A. Sub-Lingual

B. Transdermal Patch

C. Vaporizer

D. Intravenous

ANSWER: D

Explanation:

Intravenous is correct because a drug administered directly into a vein enters the systemic circulation immediately and completely. This route bypasses absorption barriers in the skin, mucous membranes, lungs, and gastrointestinal tract, as well as first-pass metabolism in the liver. Consequently, intravenous administration has 100% bioavailability: the entire intended dose is available in the bloodstream. When the same dose is administered over a comparable period, this direct systemic delivery produces the most immediate and generally highest attainable blood concentration (peak plasma concentration).

For pharmacy practice, this principle is important when evaluating onset, monitoring for adverse effects, preparing sterile products, and understanding why intravenous medications may require controlled infusion rates. A rapid rise in plasma drug concentration can be clinically beneficial when prompt drug action is needed, but it also makes careful dosing and monitoring essential. The U.S. Food and Drug Administration describes bioavailability as the rate and extent to which an active ingredient becomes available at the site of action, and intravenous administration serves as the reference standard because systemic availability is complete. See the FDA's drug-guidance resources and the Merck Manual's overview of drug absorption.

QUESTION NO: 29

An eight year old boy weights 75 Lbs. The adult dosage of Drug C is 400mg. The childrens dosage using Clarks rule is:

A. 100mg

B. 150mg

C. 200mg

D. 250mg

ANSWER: C

Explanation:

200mg is the correct pediatric dose when Clark's rule is applied. Clark's rule estimates a child's dose from the adult dose using the child's weight in pounds: child dose = (weight in lb ÷ 150 lb) × adult dose. For a child weighing 75 lb, the weight fraction is 75 ÷ 150, or 0.5. Multiplying 0.5 by the stated adult dose of 400 mg gives 200 mg. Therefore, the calculated dose is 200 mg.

Clark's rule is a traditional weight-based calculation method and is useful for performing the arithmetic requested in this question. In practice, pharmacy personnel should use the medication's current pediatric labeling, a validated pediatric dosing reference, and the prescribed indication because pediatric doses may instead be based on kilograms, body-surface area, age, organ function, or a maximum-dose limit. The FDA explains that pediatric product labeling provides information intended to support safe and effective use in children: FDA Pediatric and Maternal Health Product Development. Additional background on the principles and special considerations of pediatric prescribing is available from NCBI Bookshelf: Drug Prescribing for Children.

QUESTION NO: 30

FILL BLANK

A glass compounding slab is used for?

A. See explanation below

B. Mixing ointments and creams on a smooth surface

ANSWER: B

Explanation:

A glass compounding slab is used for mixing ointments and creams on a smooth, nonporous surface. In nonsterile pharmacy compounding, a slab provides a broad, flat work area for incorporating powders, liquids, or other ingredients into a semisolid base. The preparer can use a spatula to spread and fold the preparation repeatedly across the slab, which promotes a uniform mixture and helps break up small clumps of powder. Glass is well suited to this task because its surface is hard, smooth, and generally easy to clean between preparations. The slab is especially useful during geometric dilution or levigation-related work when a solid ingredient must be evenly distributed throughout an ointment or cream. Proper cleaning and preparation of compounding equipment remain important to prevent contamination or carryover between compounded preparations. The PTCB's Certified Pharmacy Technician examination framework includes nonsterile compounding concepts and equipment within its knowledge expectations. For additional background on dosage-form compounding and semisolid preparations, see NCBI Bookshelf's overview of pharmaceutical dosage forms and the PTCB Certification Exam Content Outline.

QUESTION NO: 31

FILL BLANK Which of the following medications is available as an inhaler for asthma?

A. See explanation below

B. Albuterol

ANSWER: B

Explanation:

Albuterol is correct because it is a short-acting beta agonist that is commonly supplied in inhaled dosage forms for the treatment or prevention of bronchospasm associated with asthma. Inhaled albuterol delivers the medication directly to the airways, where it relaxes bronchial smooth muscle and quickly improves airflow. This makes it a standard rescue medicine for acute asthma symptoms such as wheezing, chest tightness, shortness of breath, or cough caused by bronchospasm. Albuterol products may be dispensed as metered-dose inhalers, dry-powder inhalers, or solutions for nebulization; the specific product, device, dose, and priming instructions should be verified during dispensing and patient counseling. Pharmacy technicians should recognize that the inhaler is a device-specific dosage form and ensure that the prescribed product matches the patient's intended formulation. The FDA-approved prescribing information for albuterol sulfate inhalation aerosol identifies it for treatment or prevention of bronchospasm in patients with reversible obstructive airway disease, including asthma. The National Heart, Lung, and Blood Institute also identifies quick-relief medicines such as short-acting beta agonists for rapid relief of asthma symptoms. See FDA prescribing information and NHLBI asthma treatment guidance.

QUESTION NO: 32

Which of the following is not an example of an oral dosage form?

A. Amoxicillin

B. Depakote

C. Nitrostat

D. Synthroid

ANSWER: C

Explanation:

Nitrostat is the correct answer because it is a brand of nitroglycerin formulated as a sublingual tablet. Sublingual administration means the tablet is placed under the tongue and allowed to dissolve, so the medication is absorbed through the highly vascular tissue of the oral mucosa rather than being swallowed for gastrointestinal absorption. This route is used for nitroglycerin because it produces a rapid clinical effect, which is important when treating or preventing episodes of angina. Although the tablet is placed in the mouth, sublingual administration is classified separately from a conventional oral dosage form in pharmacy practice. Standard oral solid dosage forms, such as tablets and capsules intended for swallowing, travel through the gastrointestinal tract before absorption and generally do not provide the same immediate onset as a sublingual product. Pharmacy technicians should recognize route-specific dosage forms and counsel patients according to the prescription label and pharmacist instructions; Nitrostat should be placed under the tongue, not swallowed, chewed, or crushed. The FDA-approved prescribing information identifies Nitrostat as nitroglycerin sublingual tablets and provides its administration directions. See the FDA Nitrostat prescribing information and the DailyMed Nitrostat listing.

QUESTION NO: 33

FILL BLANK Which of the following drugs requires an auxiliary label stating that "This drug may cause discoloration of the urine?"

A. See explanation below

B. Pyridium

ANSWER: B

Explanation:

Pyridium is the brand name for phenazopyridine, a urinary tract analgesic used to relieve urinary pain, burning, urgency, and frequency. A key counseling point for phenazopyridine is that it commonly changes urine to an orange or reddish-orange color. This effect is expected from the medication and does not usually represent bleeding. Because the color change can be striking and may stain clothing or contact lenses, an auxiliary label is appropriate to prepare the patient and support safe, informed use. Pharmacy technicians should recognize this prominent medication-specific warning when selecting labels and

should refer patients with questions about the drug, duration of use, or persistent symptoms to the pharmacist. Phenazopyridine is generally intended for short-term symptomatic relief while the underlying cause of urinary symptoms is evaluated or treated. The U.S. National Library of Medicine specifically advises that phenazopyridine may cause urine to turn red-orange or brown and notes that this is normal. Product-label information can also be reviewed through the National Library of Medicine's DailyMed phenazopyridine search and the patient-focused MedlinePlus phenazopyridine monograph.

QUESTION NO: 34

FILL BLANK

The main indication for the drug triamterene/HCTZ is _____.

A. See explanation below

B. Hypertension (high blood pressure)

ANSWER: B

Explanation:

Hypertension (high blood pressure) is the main indication for triamterene/HCTZ. This fixed-dose combination contains hydrochlorothiazide, a thiazide diuretic that promotes sodium and water excretion and thereby helps lower blood pressure, plus triamterene, a potassium-sparing diuretic. Triamterene helps reduce the potassium loss that hydrochlorothiazide can cause when used alone. The combination is particularly useful when a diuretic is appropriate for blood-pressure control and avoiding or minimizing hypokalemia is clinically important.

Product labeling identifies triamterene and hydrochlorothiazide tablets as indicated for the treatment of hypertension or edema in patients who develop hypokalemia with hydrochlorothiazide alone or in whom hypokalemia cannot be risked. For a single best-answer fill-in-the-blank question asking for the main indication, hypertension is the most appropriate completion. Pharmacy technicians should recognize that this medication is commonly dispensed as an antihypertensive diuretic combination and should be aware that potassium monitoring may be relevant because triamterene can increase serum potassium. See the official prescribing information at DailyMed and drug information from MedlinePlus.

QUESTION NO: 35

A new product has arrived to your pharmacy. The storage requirements on the label read: Store at 1.5°C - 3.3°C. Where would you store them?

A. Room Temperature

B. Refrigerator

C. Freezer

D. Incubator

ANSWER: B

Explanation:

Refrigerator is correct because the labeled storage range of 1.5°C to 3.3°C is a refrigerated temperature range. Pharmacy refrigerators are used for products requiring cold storage and must be capable of consistently maintaining the product within its manufacturer-labeled temperature limits. The technician should place the product in an appropriate monitored refrigerator, rather than assuming that any cold location is suitable. Temperature should be checked using a calibrated monitoring device, ideally one that records minimum and maximum temperatures or continuously logs readings, so excursions outside 1.5°C to 3.3°C can be identified and addressed according to pharmacy policy and manufacturer instructions. The product should also be positioned to allow air circulation and should not be placed directly against cooling vents, walls, or areas prone to temperature fluctuation. Although many refrigerated medications are commonly described as requiring 2°C to 8°C storage, this item's narrower labeled range controls handling decisions. Proper storage preserves the medication's quality, safety, and expected potency. FDA guidance emphasizes following the storage conditions specified in the approved product

labeling; see the FDA drug storage and stability resources. CDC guidance also describes the importance of temperature monitoring for refrigerated pharmaceutical products: CDC Storage and Handling Toolkit.

QUESTION NO: 36

The decision to add new medications to a hospitals formulary are usually made by :

A. Drug Company Representatives

B. Board of Physicians

C. Pharmacy and Therapeutics Committee

D. Hospital General Manager

ANSWER: C

Explanation:

The **Pharmacy and Therapeutics Committee** is the hospital body that usually evaluates and recommends whether medications should be added to, removed from, or restricted on the institution's formulary. This interdisciplinary committee commonly includes pharmacists, physicians, nurses, and other relevant clinicians or administrators. Its role is to promote safe, effective, evidence-based, and cost-conscious medication use throughout the health system.

When considering a new medication, the committee reviews clinical evidence for efficacy and safety, therapeutic advantages compared with existing formulary products, adverse-effect risks, monitoring needs, medication-use processes, and financial impact. The committee may also establish criteria for use, such as limiting the drug to particular indications, patient populations, or prescribers. Pharmacy technicians support the formulary process by maintaining accurate inventory and formulary information, helping ensure that medication distribution follows approved policies, and communicating restrictions as directed by the pharmacist.

This committee-based formulary-management structure is described in guidance from the American Society of Health-System Pharmacists and aligns with the medication-management standards discussed by The Joint Commission.

QUESTION NO: 37

A dosage form that dissolves when held between the cheek and gum is called a:

A. Sublingual

B. Buccal

C. Enteric Coated

D. Pouch

ANSWER: B

Explanation:

Buccal is correct because a buccal dosage form is designed to be placed in the buccal cavity—the space between the inner cheek and the gum. The medication dissolves or releases drug while held there, allowing absorption through the buccal mucosa directly into systemic circulation. This route can be useful when a rapid effect is desired or when avoiding degradation in the gastrointestinal tract and first-pass metabolism in the liver may improve drug availability. Pharmacy personnel should recognize the intended placement site and counsel patients to position the product against the cheek and gum, leave it in place as directed, and avoid chewing or swallowing it unless product-specific instructions say otherwise. Proper administration is important because moving the medication from the buccal site can alter the rate or amount of drug absorbed. The U.S. National Library of Medicine's Medical Subject Headings defines the buccal route as administration through the cheek mucosa, and the FDA provides medication-administration information for patients and professionals. See NCBI MeSH: Administration, Buccal and FDA: Drug Information for Consumers.

QUESTION NO: 38

The Sig for "Right Ear" is:

A. AD

B. AU

C. AR

D. AS

ANSWER: A

Explanation:

AD is the correct Sig abbreviation for the right ear. It derives from the Latin term *auris dextra*, meaning “right ear.” In prescription directions, this abbreviation identifies the ear in which an otic medication is to be administered. For example, directions such as “instill 4 drops AD twice daily” instruct the patient to place four drops into the right ear two times per day.

Pharmacy technicians must accurately interpret and enter route and site-of-administration abbreviations because the specified ear is clinically important. Otic products may be prescribed for an infection, inflammation, excessive cerumen, or another condition affecting only one ear. Clear transcription of the prescribed site helps ensure the medication label communicates the intended instructions to the patient and supports the pharmacist’s final verification process. The Institute for Safe Medication Practices includes ear abbreviations in its guidance on safe medication-use terminology, and medication labeling standards emphasize directions that patients can understand. See the ISMP List of Error-Prone Abbreviations and the FDA’s medication-error prevention information.

QUESTION NO: 39

FILL BLANK

You receive an order for 10mEq of magnesium sulfate to be added to a TPN. You have a 50-ml vial of 4 mEq/ml of magnesium sulfate in stock. How much do you need to inject into the TPN?

A. See explanation below

B. 2.5 mL

ANSWER: B

Explanation:

The required volume is **2.5 mL**. For an electrolyte additive expressed in milliequivalents, calculate the volume by dividing the prescribed amount by the product concentration: 10 mEq ÷ 4 mEq/mL = 2.5 mL. This calculation confirms that 2.5 mL supplies the ordered 10 mEq of magnesium sulfate for addition to the total parenteral nutrition preparation. The vial’s total size of 50 mL does not change the volume to withdraw; it only indicates that enough medication is available. Pharmacy technicians should retain the concentration’s units throughout the calculation so that mEq cancels, leaving mL as the final dose volume. Before compounding, the calculated volume should be verified according to the pharmacy’s sterile-compounding workflow and documented as required. Magnesium sulfate injection labeling and concentration information can be reviewed through DailyMed’s magnesium sulfate injection listings. For foundational medication-dose calculation principles used in pharmacy practice, see the NCBI Bookshelf medication administration and dosage calculations resource.

QUESTION NO: 40

Which drug is not DEA controlled?

A. Phentermine

B. Prozac

C. Lunesta

D. Valium

ANSWER: B

Explanation:

Prozac is the correct answer because it is the brand name for fluoxetine, a selective serotonin reuptake inhibitor used primarily to treat depression, obsessive-compulsive disorder, panic disorder, bulimia nervosa, and related conditions. Fluoxetine is a prescription-only medication, but it is not scheduled as a controlled substance under the federal Controlled Substances Act and therefore is not assigned a DEA schedule. In pharmacy practice, it is important to distinguish prescription status from controlled-substance status: many medications require a prescription because of their clinical risks, monitoring needs, or potential adverse effects without being subject to DEA controlled-substance scheduling.

The official Prozac prescribing information identifies fluoxetine as not being a controlled substance and reports that it has not been systematically studied for abuse, tolerance, or physical dependence in humans. Pharmacy technicians should still process Prozac according to applicable prescription-labeling, refill, patient-profile, and state-law requirements, while recognizing that federal DEA controlled-substance inventory, recordkeeping, and transfer rules do not apply merely because it is a prescription drug. See the DailyMed Prozac prescribing information and the DEA's drug scheduling overview.

QUESTION NO: 41

FILL BLANK Which auxiliary label would be used for a prescription for tetracycline 250 mg capsules?

A. Avoid dairy products and antacids.

ANSWER: A

Explanation:

"Avoid dairy products and antacids" is the appropriate auxiliary label for tetracycline 250 mg capsules because tetracycline absorption is substantially reduced when it is taken with products containing polyvalent minerals. Calcium in milk and other dairy foods can bind tetracycline in the gastrointestinal tract, forming complexes that are not absorbed effectively. Many antacids contain aluminum, calcium, magnesium, or similar minerals that can produce the same interaction. Reduced absorption may lower the amount of antibiotic available in the body and may compromise treatment effectiveness.

For patient counseling, the label gives a clear, practical reminder to separate tetracycline from dairy products and mineral-containing antacids. Patients should follow the pharmacy's specific timing instructions and the prescriber's directions; tetracycline is commonly taken on an empty stomach with a full glass of water when tolerated. This interaction is important enough to be routinely addressed during dispensing because it is directly relevant to safe and effective medication use. MedlinePlus instructs patients not to take tetracycline with antacids containing calcium, aluminum, or magnesium and provides timing guidance for these products. The official drug-label information also describes the reduced absorption associated with calcium-containing foods and antacids. See MedlinePlus: Tetracycline and DailyMed: Tetracycline labeling.

QUESTION NO: 42

Dr. Dasani has a dental practice in Smiley, Texas. What should the final number be in his DEA number given the first 8 characters of AD380410?

A. 8

B. 2

C. 4

D. 5

ANSWER: A

Explanation:

The final number is **8**. A DEA registration number uses two letters followed by seven digits; when calculating the check digit, use the first six numerical digits after the letters. For AD380410, those digits are 3, 8, 0, 4, 1, and 0. Add the digits in the first, third, and fifth numerical positions: 3 + 0 + 1 = 4. Then add the digits in the second, fourth, and sixth numerical positions: 8 + 4 + 0 = 12. Double that second total to get 24, then add it to the first-position total: 4 + 24 = 28. The final digit of this result is 8, so 8 is the required final digit for the complete DEA number. This checksum method is useful to pharmacy personnel because it provides a basic arithmetic check of the number format before further validation through appropriate pharmacy procedures. DEA registration requirements and controlled-substance registration information are maintained by the DEA Diversion Control Division. Pharmacy technicians should also follow applicable federal and state controlled-substance requirements, as summarized by the DEA's Controlled Substances Act and regulations resources.

QUESTION NO: 43

FILL BLANK

A prescription order for neomycin 0.75 g PO bid x 30 days is submitted. In stock you have 500-mg tablets. How many tablets will the patient use per day?

A. 3 tablets per day

ANSWER: A

Explanation:

3 tablets per day is correct. First, convert the prescribed dose from grams to milligrams: 0.75 g equals 750 mg, since 1 g equals 1,000 mg. The directions specify 750 mg by mouth twice daily; "PO" means by mouth, and "bid" means two doses each day. Therefore, the patient's total daily dose is 750 mg × 2, or 1,500 mg per day. Each available tablet contains 500 mg. Dividing the required daily amount by the tablet strength gives 1,500 mg ÷ 500 mg per tablet = 3 tablets per day. The 30-day duration is relevant when determining the total quantity to dispense, but the question asks only for the number of tablets used each day. Performing the unit conversion before calculating tablet quantity is an important pharmacy-math practice because it ensures that the prescribed dose and stock strength are expressed in the same unit. The metric relationship used here is consistent with the National Institute of Standards and Technology SI unit guidance, and standard prescription abbreviations such as PO and BID are listed in the Merck Manual's prescription-writing guidance.