Board Exam Desk

Pharmacy Reviewer

Pharmacy Licensure Examination | PRC | 120 original questions

2026 Edition | Updated November 2026

Original board-style practice questions with an answer key.

Practice questions

Inorganic Pharmaceutical Chemistry

1. An elderly patient taking an antacid suspension every day for several weeks complains of hard stools and constipation. Which antacid ingredient is the most likely cause?

A. Aluminum hydroxide
B. Magnesium hydroxide
C. Magnesium citrate
D. Sodium sulfate

9. A patient's liver biopsy and Kayser-Fleischer rings point to Wilson's disease. Accumulation of which metal underlies this condition?

A. Zinc
B. Iron
C. Copper
D. Manganese

17. Why is barium sulfate, rather than barium chloride, used as an oral radiocontrast agent for gastrointestinal imaging?

A. It is practically insoluble, so little toxic barium ion is absorbed
B. It is more soluble and therefore coats the mucosa faster
C. It releases sulfate ions that enhance X-ray absorption
D. It is converted to barium carbonate in the stomach

25. A worker exposed to a radiation leak is given a stable iodine salt to block thyroid uptake of radioactive iodine. Which compound is used?

A. Potassium chloride
B. Sodium bromide
C. Potassium permanganate
D. Potassium iodide

33. When 3% hydrogen peroxide is applied to a wound it foams vigorously. What explains its antiseptic action?

A. Tissue catalase decomposes it, releasing oxygen that acts on microorganisms
B. It precipitates bacterial proteins as insoluble peroxide salts
C. It lowers wound pH strongly enough to kill all spores
D. It chelates the metal ions bacteria need for growth

41. A patient with hypocalcemic tetany needs intravenous calcium. Which preparation is generally preferred for peripheral IV use because it is less irritating to veins?

A. Calcium gluconate injection
B. Calcium carbonate suspension
C. Dibasic calcium phosphate
D. Calcium lactate tablets

49. A patient taking bismuth subsalicylate for traveler's diarrhea worries about a black tongue and dark stools. What causes this harmless discoloration?

A. Oxidation of salicylate to a dark quinone
B. Formation of bismuth sulfide in the gut
C. Gastrointestinal bleeding caused by the salicylate
D. Formation of insoluble bismuth chloride

57. Calamine lotion has a characteristic pink color. Which ingredient, combined with zinc oxide, gives this color?

A. Cupric sulfate
B. Cobalt chloride
C. Ferric oxide
D. Potassium permanganate

65. Which antacid is classified as systemic because its cation is absorbed and can produce metabolic alkalosis with heavy use?

A. Aluminum hydroxide
B. Aluminum phosphate
C. Sodium bicarbonate
D. Magnesium trisilicate

73. A ferrous sulfate tablet contains 325 mg of $FeSO_4 \cdot 7H_2O$ (MW 278.0). About how much elemental iron (Fe = 55.85) does it supply?

A. 33 mg
B. 108 mg
C. 65 mg
D. 120 mg

81. Magnesium sulfate heptahydrate, used as a saline cathartic and in managing eclampsia, is commonly known as:

A. Glauber's salt
B. Epsom salt
C. Rochelle salt
D. Milk of magnesia

89. Which inorganic compound is used in medicated shampoos for dandruff and seborrheic dermatitis because of its antifungal and cytostatic action?

A. Sodium thiosulfate
B. Aluminum chlorohydrate
C. Zinc chloride
D. Selenium sulfide

97. Stannous fluoride and sodium fluoride in dentifrices reduce dental caries mainly by:

A. Dissolving plaque by strong oxidation
B. Neutralizing all oral acids permanently
C. Precipitating salivary proteins on the enamel
D. Converting tooth hydroxyapatite into more acid-resistant fluorapatite

105. A newborn is given eye prophylaxis using a classic inorganic astringent and germicide that stains skin black on light exposure. Which compound is this?

A. Silver nitrate
B. Mercuric chloride
C. Zinc sulfate
D. Boric acid

113. A pharmacist is asked which of the following is used as a protective dusting powder and also as a pigment and mild astringent in ointments. Which is it?

A. Sodium chloride
B. Ammonium chloride
C. Potassium nitrate
D. Zinc oxide

Organic Pharmaceutical Chemistry

2. A bottle of aspirin tablets stored in a humid kitchen smells strongly of vinegar. Hydrolysis of which functional group explains this?

A. Amide, releasing ammonia
B. Ester, releasing acetic acid
C. Ether, releasing methanol
D. Carboxylic acid, releasing carbon dioxide

10. Clavulanic acid is combined with amoxicillin in some products. What is its role?

A. It increases renal tubular secretion of amoxicillin
B. It inhibits bacterial beta-lactamase that would destroy amoxicillin
C. It widens the spectrum by binding ribosomes
D. It converts amoxicillin to a more acid-stable salt

18. A drug is supplied as an equimolar mixture of its two enantiomers. This mixture is described as:

A. Meso
B. Diastereomeric
C. Epimeric
D. Racemic

26. Codeine differs structurally from morphine by having:

A. Acetyl esters at both the 3- and 6-hydroxyls
B. An N-allyl group in place of the N-methyl
C. A methyl ether in place of the phenolic 3-hydroxyl
D. A ketone in place of the 6-hydroxyl

34. Sulfonamide antibacterials act as competitive antagonists because they are structural analogs of:

A. Nicotinic acid
B. Para-aminobenzoic acid
C. Benzoic acid
D. Salicylic acid

42. Enalapril has little ACE-inhibiting activity until it is converted in the body. This activation occurs by:

A. Hydrolysis of its ethyl ester to the diacid enalaprilat
B. N-demethylation by CYP2D6
C. Glucuronidation of its carboxyl group
D. Reduction of its amide to an amine

50. Why is epinephrine ineffective when swallowed?

A. It is too lipophilic to dissolve in gastric fluid
B. It is rapidly metabolized by COMT and MAO in the gut wall and liver
C. It is excreted unchanged into bile before absorption
D. It forms an insoluble complex with gastric mucin

58. The steroid nucleus (cyclopentanoperhydrophenanthrene) found in corticosteroids and sex hormones consists of:

A. Three six-membered rings and one five-membered ring
B. Four six-membered rings
C. Two six-membered rings and two five-membered rings
D. Three five-membered rings and one six-membered ring

66. For a barbiturate to have significant sedative-hypnotic activity, disubstitution is required at which position of the barbituric acid ring?

A. C-2
B. C-4
C. N-1 only
D. C-5

74. A patient reports an allergy to para-aminobenzoic acid derivatives. Which local anesthetic should be avoided?

A. Lidocaine
B. Bupivacaine
C. Procaine
D. Mepivacaine

82. The basic structure common to diazepam and other classic benzodiazepines is:

A. A benzene ring fused to a six-membered ring with one sulfur
B. Two benzene rings joined by a five-membered lactam
C. A benzene ring fused to a seven-membered ring with two nitrogens
D. A pyridine ring fused to a four-membered beta-lactam

90. In the laboratory synthesis of aspirin, salicylic acid is acetylated by reacting it with:

A. Acetic anhydride
B. Methanol
C. Phenol
D. Ethyl acetate

98. Nitroglycerin, despite its name, is chemically classified as:

A. An aromatic nitro compound
B. A nitrate ester of glycerol
C. A primary aliphatic amine
D. A nitrile derivative of glycerol

106. Which vitamin contains cobalt coordinated within a corrin ring?

A. Riboflavin
B. Thiamine
C. Pyridoxine
D. Cyanocobalamin

114. In adults, the most common phase II conjugation reaction, which makes drugs more water-soluble for excretion, is:

A. Acetylation
B. Methylation
C. Glucuronidation
D. Hydroxylation

Qualitative and Quantitative Pharmaceutical Chemistry

3. A sodium hydroxide solution is standardized against 0.5105 g of potassium hydrogen phthalate (MW 204.22), requiring 24.60 mL to reach the endpoint. What is the normality of the NaOH?

A. 0.1040 N
B. 0.0984 N
C. 0.1016 N
D. 0.1203 N

11. Which substance is a common primary standard for standardizing hydrochloric acid solutions?

A. Potassium hydrogen phthalate
B. Anhydrous sodium carbonate
C. Sodium hydroxide pellets
D. Silver nitrate

19. An analyst titrates acetic acid with standard sodium hydroxide. Which indicator is most suitable?

A. Phenolphthalein
B. Methyl orange
C. Methyl red
D. Bromophenol blue

27. Calcium in a calcium gluconate sample is assayed by direct titration with disodium edetate. This type of analysis is called:

A. Precipitimetry
B. Complexometric titration
C. Iodometric titration
D. Nonaqueous acidimetry

35. Ascorbic acid is assayed by direct titration with standard iodine solution. Which indicator signals the endpoint?

A. Phenolphthalein, which turns pink
B. Starch TS, which turns blue with excess iodine
C. Ferric ammonium sulfate, which turns red
D. Potassium chromate, which turns brick red

43. In the Volhard method, excess silver nitrate added to a chloride sample is back-titrated with ammonium thiocyanate. What serves as the indicator?

A. Ferric ammonium sulfate
B. Potassium chromate
C. Dichlorofluorescein
D. Eosin Y

51. A quality control lab must determine the water content of a hygroscopic drug powder at low levels. Which method is specific for water?

A. Kjeldahl digestion
B. Loss on ignition
C. Karl Fischer titration
D. Argentometric titration

59. A drug solution in a 1-cm cell gives an absorbance of 0.45. If its molar absorptivity is 15,000 L/mol.cm, what is its concentration?

A. 3.0 x 10^-5 M
B. 3.0 x 10^-4 M
C. 6.75 x 10^-3 M
D. 1.5 x 10^-5 M

67. On a thin-layer chromatogram, a spot travels 4.2 cm while the solvent front travels 7.0 cm from the origin. What is the Rf value?

A. 1.67
B. 0.42
C. 2.80
D. 0.60

75. A 0.5000 g sample yields 0.2866 g of silver chloride (MW 143.32) on gravimetric analysis. What is the percentage of chloride (Cl = 35.45) in the sample?

A. 28.66%
B. 57.32%
C. 7.09%
D. 14.18%

83. Weakly basic drugs that cannot be titrated sharply in water are often assayed with perchloric acid using which solvent?

A. Glacial acetic acid
B. Water
C. Aqueous ammonia
D. Pyridine

91. During a flame test, an unknown salt imparts a brick-red (orange-red) color to the flame. Which cation is most likely present?

A. Sodium
B. Potassium
C. Barium
D. Calcium

99. An analyst's replicate assay results are very close to one another but all are about 8% below the true value. This indicates:

A. Good precision with a systematic error
B. Good accuracy with poor precision
C. Purely random error
D. Good accuracy and good precision

107. In reversed-phase HPLC using a C18 column and a water-methanol mobile phase, which compound in a mixture would generally elute first?

A. The most nonpolar compound
B. The compound with the highest molecular weight
C. The compound with the greatest lipophilicity
D. The most polar compound

115. The Kjeldahl method is used in pharmaceutical analysis to determine the content of:

A. Water
B. Nitrogen
C. Chloride
D. Sulfur

Pharmacognosy and Plant Chemistry

4. Digoxin used in heart failure is extracted mainly from the leaves of which plant?

A. Digitalis lanata
B. Digitalis purpurea
C. Strophanthus gratus
D. Urginea maritima

12. A mother asks for a DOH-recognized Philippine herbal medicine for her child's mild cough. Which plant is traditionally prepared for cough and asthma?

A. Lagundi (Vitex negundo)
B. Sambong (Blumea balsamifera)
C. Akapulko (Senna alata)
D. Ampalaya (Momordica charantia)

20. A patient with small kidney stones asks about a local herbal diuretic. Which Philippine medicinal plant is used for this purpose?

A. Sambong (Blumea balsamifera)
B. Tsaang gubat (Ehretia microphylla)
C. Niyog-niyogan (Quisqualis indica)
D. Yerba buena (Clinopodium douglasii)

28. Which Philippine medicinal plant's leaf preparation is used topically for tinea and other superficial fungal skin infections?

A. Akapulko (Senna alata)
B. Bawang (Allium sativum)
C. Ulasimang bato (Peperomia pellucida)
D. Bayabas (Psidium guajava)

36. An acidified plant extract gives a cream-white precipitate with potassium mercuric iodide solution. Which class of constituents is indicated?

A. Tannins
B. Saponins
C. Flavonoids
D. Alkaloids

44. The Keller-Killiani test on a digitalis extract gives a reddish-brown ring at the interface. This test detects:

A. The anthraquinone aglycone
B. The tropane nucleus of alkaloids
C. The 2-deoxysugar portion of cardiac glycosides
D. Free phenolic tannins

52. Senna leaves, cascara bark and aloe all act as stimulant laxatives because they contain:

A. Cardiac glycosides
B. Cyanogenic glycosides
C. Anthraquinone glycosides
D. Tropane alkaloids

60. Quinine, used in severe malaria, is obtained from the bark of which genus?

A. Rauwolfia
B. Papaver
C. Erythroxylum
D. Cinchona

68. Atropine and hyoscyamine are tropane alkaloids obtained from which plant?

A. Ephedra sinica
B. Atropa belladonna
C. Catharanthus roseus
D. Physostigma venenosum

76. Menthol, used in topical counterirritants and lozenges, is the principal constituent of the volatile oil from:

A. Eucalyptus globulus
B. Syzygium aromaticum
C. Mentha piperita
D. Cinnamomum zeylanicum

84. The anticancer drug paclitaxel was originally isolated from the bark of:

A. Podophyllum peltatum
B. Camptotheca acuminata
C. Taxus brevifolia
D. Colchicum autumnale

92. Vincristine and vinblastine are obtained from a plant locally called tsitsirika. What is its scientific name?

A. Vinca minor
B. Catharanthus roseus
C. Rauwolfia serpentina
D. Datura metel

100. An aqueous plant extract forms a precipitate with gelatin solution and turns blue-black with ferric chloride. Which constituent is most likely present?

A. Volatile oils
B. Starch
C. Fixed oils
D. Tannins

108. A plant extract produces a persistent honeycomb froth when shaken with water and causes hemolysis of red blood cells. This suggests the presence of:

A. Alkaloids
B. Resins
C. Saponins
D. Anthocyanins

116. Which Philippine medicinal plant's seeds are traditionally used as an anthelmintic against roundworms?

A. Lagundi (Vitex negundo)
B. Sambong (Blumea balsamifera)
C. Bawang (Allium sativum)
D. Niyog-niyogan (Quisqualis indica)

Pharmacology and Toxicology

5. A teenager is brought to the ER several hours after ingesting a large amount of paracetamol. Which antidote replenishes hepatic glutathione to detoxify the reactive metabolite?

A. Flumazenil
B. N-acetylcysteine
C. Deferoxamine
D. Fomepizole

13. A patient on warfarin has an INR of 9 with minor gum bleeding. Which agent directly counteracts warfarin's mechanism?

A. Protamine sulfate
B. Tranexamic acid
C. Vitamin K (phytonadione)
D. Desmopressin

21. A patient receiving a continuous unfractionated heparin infusion develops significant bleeding. Which antidote is given?

A. Protamine sulfate
B. Vitamin K
C. Atropine
D. Naloxone

29. A patient found unresponsive has pinpoint pupils and a respiratory rate of 6 per minute. Which drug should be administered first?

A. Flumazenil
B. Naloxone
C. Physostigmine
D. Atropine

37. A farmer exposed to an organophosphate insecticide has salivation, bronchorrhea, bradycardia and muscle fasciculations. Which combination is appropriate?

A. Naloxone plus flumazenil
B. Atropine plus pralidoxime
C. Physostigmine plus neostigmine
D. Dimercaprol plus penicillamine

45. A hypertensive patient started on captopril develops a persistent dry cough. What is the best alternative that avoids this effect while keeping renin-angiotensin blockade?

A. Losartan
B. Enalapril
C. Lisinopril
D. Ramipril

53. Which antihypertensive should generally be avoided in a patient with moderate persistent asthma?

A. Amlodipine
B. Propranolol
C. Losartan
D. Hydrochlorothiazide

61. A patient receiving gentamicin for 10 days reports ringing in the ears and has rising serum creatinine. These effects are characteristic of:

A. Macrolide hepatotoxicity
B. Fluoroquinolone tendon toxicity
C. Tetracycline photosensitivity
D. Aminoglycoside ototoxicity and nephrotoxicity

69. Why is metformin usually withheld around procedures using iodinated contrast in patients with impaired kidney function?

A. Contrast agents directly inactivate metformin in the blood
B. Metformin makes contrast media precipitate in the kidney
C. Metformin causes severe hypoglycemia during imaging
D. Contrast-induced kidney injury may cause metformin to accumulate and raise lactic acidosis risk

77. A patient on simvastatin drinks large amounts of grapefruit juice daily and develops muscle pain. What is the mechanism of this interaction?

A. Induction of CYP2C9, forming a toxic metabolite
B. Inhibition of intestinal CYP3A4, increasing simvastatin levels
C. Displacement of simvastatin from albumin
D. Increased renal tubular reabsorption of simvastatin

85. A woman taking combined oral contraceptives is started on rifampicin for tuberculosis. What counseling point is most important?

A. Double the contraceptive dose to prevent nausea
B. Stop rifampicin during the placebo week
C. Use an additional non-hormonal method because contraceptive levels may fall
D. Expect the contraceptive to raise rifampicin toxicity

93. A 200 mg dose of a drug with a half-life of 6 hours is given intravenously. Assuming first-order elimination, how much remains in the body after 18 hours?

A. 50 mg
B. 25 mg
C. 12.5 mg
D. 66.7 mg

101. A drug has a volume of distribution of 0.5 L/kg. What loading dose is needed to reach a plasma concentration of 10 mg/L in a 70-kg patient?

A. 700 mg
B. 140 mg
C. 350 mg
D. 35 mg

109. A patient given midazolam for a procedure becomes oversedated. Which agent selectively reverses benzodiazepine effects?

A. Flumazenil
B. Naloxone
C. Neostigmine
D. Sugammadex

117. A patient starting isoniazid for tuberculosis is also prescribed pyridoxine. What adverse effect does pyridoxine help prevent?

A. Orange discoloration of urine
B. Peripheral neuropathy
C. Optic neuritis
D. Hyperuricemia

Pharmaceutics

6. How many grams of a 20% ointment and a 5% ointment must be mixed to prepare 300 g of a 10% ointment?

A. 200 g of 20% and 100 g of 5%
B. 150 g of 20% and 150 g of 5%
C. 60 g of 20% and 240 g of 5%
D. 100 g of 20% and 200 g of 5%

14. How many milliliters of a 1% w/v stock solution are needed to prepare 500 mL of a 1:2000 solution?

A. 25 mL
B. 2.5 mL
C. 50 mL
D. 250 mL

22. Using Clark's rule, what dose should be given to a child weighing 22 lb if the usual adult dose is 500 mg?

A. 110 mg
B. 37 mg
C. 73 mg
D. 147 mg

30. Using Young's rule, what is the dose for a 4-year-old child if the adult dose is 400 mg?

A. 133 mg
B. 100 mg
C. 80 mg
D. 160 mg

38. A child has a body surface area of 0.8 m2. Based on a standard adult BSA of 1.73 m2 and an adult dose of 250 mg, what is the approximate pediatric dose?

A. 116 mg
B. 200 mg
C. 86 mg
D. 138 mg

46. A weak acid drug has a pKa of 3.5. In gastric fluid at pH 1.5, what is the ratio of its un-ionized to ionized forms?

A. 1 : 100
B. 2 : 1
C. 1 : 2
D. 100 : 1

54. How much sodium chloride is needed to make 30 mL of a 2% drug solution isotonic if the drug's sodium chloride equivalent (E) is 0.16?

A. 0.174 g
B. 0.270 g
C. 0.096 g
D. 0.366 g

62. According to Stokes' law, if the particle radius in a suspension is halved with all else constant, the sedimentation rate becomes:

A. One-half of the original
B. Twice the original
C. One-fourth of the original
D. Four times the original

70. A formulator blends Span 80 (HLB 4.3) and Tween 80 (HLB 15.0) to obtain 10 g of emulsifier with a required HLB of 12. About how much Tween 80 is needed?

A. 2.8 g
B. 5.0 g
C. 7.2 g
D. 8.0 g

78. A drug in solution degrades by first-order kinetics with a rate constant of 0.0035 per day. What is its approximate shelf life (t90)?

A. 198 days
B. 30 days
C. 143 days
D. 3 days

86. When preparing cocoa butter suppositories by fusion, why should the base not be overheated well above its melting point?

A. It forms unstable polymorphs that melt too low and solidify poorly
B. It hydrolyzes into glycerin and becomes water-soluble
C. It polymerizes and becomes too hard to melt in the body
D. It oxidizes into a gas and loses most of its weight

94. In a tablet formulation, magnesium stearate is included at about 0.5 to 1% primarily as a:

A. Disintegrant
B. Binder
C. Diluent
D. Lubricant

102. A tablet must pass through the stomach intact and release drug in the small intestine. Which coating material is suitable?

A. Hydroxypropyl methylcellulose
B. Sucrose syrup
C. Polyethylene glycol 400
D. Cellulose acetate phthalate

110. A physician orders 1,000 mL of D5W to infuse over 8 hours using an administration set that delivers 15 drops per mL. What is the flow rate?

A. 125 drops per minute
B. 21 drops per minute
C. 63 drops per minute
D. 31 drops per minute

118. How many milliequivalents of potassium are in 1.5 g of potassium chloride (MW 74.55)?

A. 10.1 mEq
B. 40.2 mEq
C. 20.1 mEq
D. 1.5 mEq

Hospital and Clinical Pharmacy

7. In a hospital, which body is primarily responsible for developing and maintaining the drug formulary?

A. Infection Control Committee
B. Pharmacy and Therapeutics Committee
C. Hospital Ethics Committee
D. Nursing Service Committee

15. Which major advantage is associated with the unit-dose drug distribution system compared with the floor stock system?

A. Larger inventory kept on each nursing unit
B. Fewer medication errors and less drug waste
C. Less pharmacist involvement in order review
D. Lower need for packaging and labeling

23. A pharmacist will prepare an intravenous cytotoxic chemotherapy admixture. Which work area is most appropriate?

A. Horizontal laminar airflow hood
B. Open bench beside a sink
C. Fume hood without HEPA filtration
D. Class II biological safety cabinet

31. A patient develops anaphylaxis after the first injection of an antibiotic at a normal dose. This reaction is best classified as:

A. Type B (bizarre, idiosyncratic) adverse reaction
B. Type A (augmented, dose-related) reaction
C. Expected therapeutic effect
D. Drug withdrawal effect

39. Which of these drugs most warrants routine therapeutic drug monitoring of serum levels?

A. Amoxicillin
B. Cetirizine
C. Omeprazole
D. Phenytoin

47. Estimate the creatinine clearance of a 60-year-old man weighing 70 kg with serum creatinine of 1.2 mg/dL using the Cockcroft-Gault equation.

A. 78 mL/min
B. 55 mL/min
C. 65 mL/min
D. 93 mL/min

55. On admission, a pharmacist compares a patient's home medicines with the new inpatient orders to find omissions and duplications. This process is called:

A. Medication reconciliation
B. Drug utilization review
C. Formulary substitution
D. Therapeutic interchange

63. How should a patient be counseled to take levothyroxine for best absorption?

A. With a high-fiber breakfast
B. On an empty stomach, 30 to 60 minutes before breakfast
C. Together with calcium and iron supplements
D. Only at bedtime with a glass of milk

71. A patient is starting weekly alendronate for osteoporosis. Which instruction is most important to prevent esophageal injury?

A. Chew the tablet thoroughly before swallowing
B. Take it with orange juice at lunch
C. Swallow with a full glass of plain water and stay upright for at least 30 minutes
D. Lie down for an hour after taking it

79. A patient takes tetracycline capsules with a glass of milk at each dose and shows poor response. What is the likely reason?

A. Milk induces hepatic metabolism of tetracycline
B. Milk makes tetracycline more acidic and unstable
C. Calcium in milk chelates tetracycline and reduces absorption
D. Milk increases renal excretion of tetracycline

87. A patient on warfarin buys aspirin for joint pain. What is the main concern?

A. Reduced warfarin effect and clotting
B. Severe hyperkalemia
C. Serotonin syndrome
D. Increased risk of bleeding

95. A pregnant woman with chronic hypertension needs an antihypertensive. Which agent is considered an appropriate choice?

A. Enalapril
B. Losartan
C. Methyldopa
D. Aliskiren

103. In ABC analysis for hospital inventory control, items are classified according to:

A. Their annual consumption value
B. Their therapeutic importance
C. Their expiry dates
D. Their physical storage requirements

111. To reduce mix-ups between look-alike drug names, a pharmacy writes them as hydrOXYzine and hydrALAZINE on shelf labels. This strategy is called:

A. Bar code verification
B. Tall man lettering
C. Unit-of-use packaging
D. Automatic stop orders

119. In the Philippines, spontaneous reports of suspected adverse drug reactions from health professionals are sent to which agency for pharmacovigilance?

A. Professional Regulation Commission
B. Philippine Health Insurance Corporation
C. Food and Drug Administration
D. Dangerous Drugs Board

Pharmacy Jurisprudence and Ethics

8. Which law is known as the Philippine Pharmacy Act, repealing the earlier Pharmacy Law of 1969?

A. Republic Act No. 5921
B. Republic Act No. 10918
C. Republic Act No. 6675
D. Republic Act No. 9711

16. The law promoting the use of generic names in prescribing, dispensing and labeling of drugs in the Philippines is:

A. Republic Act No. 9165
B. Republic Act No. 8203
C. Republic Act No. 6675
D. Republic Act No. 9502

24. A prescription arrives bearing only a brand name with no generic name written. Under the Generics Act implementing rules, it is classified as:

A. Violative, and should not be filled
B. Erroneous, and may be filled with the generic
C. Impossible, and must be filled with the brand
D. Valid, and may be filled as written

32. Which law governs the regulation and control of dangerous drugs, including their prescription and dispensing, in the Philippines?

A. Republic Act No. 6675
B. Republic Act No. 10918
C. Republic Act No. 9165
D. Republic Act No. 7394

40. The law that strengthened the Bureau of Food and Drugs and renamed it the Food and Drug Administration is:

A. Republic Act No. 3720
B. Republic Act No. 9502
C. Republic Act No. 8203
D. Republic Act No. 9711

48. Which law, enacted in 2008, introduced measures such as drug price regulation and parallel importation to make medicines more affordable?

A. Republic Act No. 6675
B. Republic Act No. 9165
C. Republic Act No. 9502
D. Republic Act No. 9994

56. Selling a product that is falsely labeled as a registered brand drug and contains no active ingredient is penalized under which special law?

A. Republic Act No. 6675
B. Republic Act No. 8203
C. Republic Act No. 10912
D. Republic Act No. 7277

64. A senior citizen buys a medicine priced at PHP 560.00 inclusive of 12% VAT. Applying the VAT exemption and the 20% senior citizen discount, how much does the customer pay?

A. PHP 448.00
B. PHP 437.50
C. PHP 392.00
D. PHP 400.00

72. Which law requires registered professionals, including pharmacists, to complete continuing professional development for license renewal?

A. Republic Act No. 10918
B. Republic Act No. 9502
C. Republic Act No. 8981
D. Republic Act No. 10912

80. A competent adult patient refuses a medicine after being fully informed of its benefits and risks. Respecting this decision reflects which ethical principle?

A. Beneficence
B. Autonomy
C. Justice
D. Fidelity

88. A pharmacist notices that a prescribed dose is ten times higher than the usual maximum. What is the most appropriate action?

A. Contact the prescriber to clarify before dispensing
B. Dispense as written since the prescriber is responsible
C. Reduce the dose on their own and dispense
D. Refuse and return the prescription without comment

96. A neighbor asks the pharmacist what medicines a mutual acquaintance has been buying. How should the pharmacist respond?

A. Share it since the neighbor is a friend
B. Decline, because patient information is confidential
C. Share only the brand names purchased
D. Share it if the purchase was a nonprescription item

104. A drug label states an expiration date of 09/2027 with no specific day. Up to when may the product be used if properly stored?

A. The last day of September 2027
B. The first day of September 2027
C. The last day of August 2027
D. Twelve months after it is opened

112. Which government body regulates the practice of pharmacy, including licensure examinations, through the Board of Pharmacy?

A. Food and Drug Administration
B. Department of Trade and Industry
C. Commission on Higher Education
D. Professional Regulation Commission

120. Before RA 10918 took effect, the practice of pharmacy in the Philippines was governed mainly by:

A. Republic Act No. 3720
B. Republic Act No. 6675
C. Republic Act No. 9165
D. Republic Act No. 5921

Answer key

Pharmacy

1. A. Aluminum hydroxide

Aluminum salts are astringent and constipating, while magnesium and sulfate salts tend to cause loose stools.

2. B. Ester, releasing acetic acid

The acetyl ester of aspirin hydrolyzes in moisture to salicylic acid and acetic acid, which gives the vinegar odor.

3. C. 0.1016 N

N = g / (meq weight x mL) = 0.5105 / (0.20422 x 24.60) = 0.1016 N.

4. A. Digitalis lanata

Digoxin is obtained from Digitalis lanata (Grecian foxglove); D. purpurea yields mainly digitoxin.

5. B. N-acetylcysteine

N-acetylcysteine restores glutathione, which conjugates the toxic metabolite NAPQI.

6. D. 100 g of 20% and 200 g of 5%

By alligation: 20% gets 10 - 5 = 5 parts and 5% gets 20 - 10 = 10 parts; 300 g x 5/15 = 100 g of 20% and 200 g of 5%.

7. B. Pharmacy and Therapeutics Committee

The Pharmacy and Therapeutics Committee evaluates drugs for formulary inclusion and sets drug use policies.

8. B. Republic Act No. 10918

RA 10918 (2016) is the Philippine Pharmacy Act, replacing RA 5921.

9. C. Copper

Wilson's disease is a hereditary defect in copper excretion that leads to copper deposits in the liver, brain and cornea.

10. B. It inhibits bacterial beta-lactamase that would destroy amoxicillin

Clavulanic acid is a beta-lactamase inhibitor that protects the beta-lactam ring of amoxicillin from enzymatic cleavage.

11. B. Anhydrous sodium carbonate

Anhydrous sodium carbonate is a stable, pure base used to standardize acids; KHP is used for bases, and NaOH is hygroscopic and not a primary standard.

12. A. Lagundi (Vitex negundo)

Lagundi is promoted for cough and asthma; sambong is a diuretic, akapulko an antifungal and ampalaya used for blood sugar.

13. C. Vitamin K (phytonadione)

Warfarin blocks vitamin K-dependent clotting factor synthesis; giving vitamin K restores their production. Protamine reverses heparin.

14. A. 25 mL

500 mL of 1:2000 contains 0.25 g; 0.25 g / 0.01 g per mL = 25 mL of 1% stock.

15. B. Fewer medication errors and less drug waste

Unit-dose dispensing provides single, labeled doses per patient after pharmacist review, reducing errors, pilferage and waste.

16. C. Republic Act No. 6675

RA 6675, the Generics Act of 1988, requires the use of generic terminology.

17. A. It is practically insoluble, so little toxic barium ion is absorbed

Soluble barium salts are highly toxic; the insolubility of barium sulfate keeps barium ions out of the circulation while it remains radiopaque.

18. D. Racemic

A 50:50 mixture of enantiomers is a racemate and shows no net optical rotation.

19. A. Phenolphthalein

A weak acid-strong base titration has an alkaline equivalence point (about pH 8 to 9), which matches the phenolphthalein transition range.

20. A. Sambong (Blumea balsamifera)

Sambong is used as a diuretic and for urolithiasis; tsaang gubat is for diarrhea, niyog-niyogan for worms and yerba buena for pain.

21. A. Protamine sulfate

Protamine is a strongly basic protein that binds acidic heparin to form an inactive complex.

22. C. 73 mg

Clark's rule: (22/150) x 500 mg = 73.3 mg.

23. D. Class II biological safety cabinet

A vertical-flow biological safety cabinet protects both the product and the operator; horizontal flow blows air toward the worker.

24. A. Violative, and should not be filled

A prescription where the generic name is not written is violative; the pharmacist should not fill it and should report it.

25. D. Potassium iodide

Saturating the thyroid with stable iodide from potassium iodide reduces uptake of radioactive iodine isotopes.

26. C. A methyl ether in place of the phenolic 3-hydroxyl

Codeine is 3-O-methylmorphine; diacetylation gives heroin and N-allyl substitution gives opioid antagonist activity.

27. B. Complexometric titration

EDTA forms stable 1:1 chelates with metal ions; metal-ion indicators such as eriochrome black T signal the endpoint.

28. A. Akapulko (Senna alata)

Akapulko leaves contain anthraquinones and other compounds with antifungal activity and are used for ringworm and tinea.

29. B. Naloxone

Miosis with respiratory depression suggests opioid toxicity, reversed by the opioid antagonist naloxone.

30. B. 100 mg

Young's rule: age/(age + 12) x adult dose = 4/16 x 400 mg = 100 mg.

31. A. Type B (bizarre, idiosyncratic) adverse reaction

Immunologic reactions unrelated to the drug's known pharmacology and dose are Type B reactions.

32. C. Republic Act No. 9165

RA 9165 is the Comprehensive Dangerous Drugs Act of 2002.

33. A. Tissue catalase decomposes it, releasing oxygen that acts on microorganisms

Catalase breaks hydrogen peroxide into water and oxygen; the released oxygen and the mechanical effervescence give its mild antiseptic and cleansing effect.

34. B. Para-aminobenzoic acid

Sulfonamides mimic PABA and inhibit dihydropteroate synthase, blocking bacterial folate synthesis.

35. B. Starch TS, which turns blue with excess iodine

In iodimetry the first excess of iodine forms a blue starch-iodine complex.

36. D. Alkaloids

Potassium mercuric iodide (Mayer's reagent) precipitates most alkaloids.

37. B. Atropine plus pralidoxime

Atropine blocks muscarinic effects of excess acetylcholine, and pralidoxime reactivates cholinesterase before aging occurs.

38. A. 116 mg

Child dose = (0.8/1.73) x 250 mg = 115.6 mg, about 116 mg.

39. D. Phenytoin

Phenytoin has a narrow therapeutic range and saturable (nonlinear) kinetics, so serum levels guide dosing.

40. D. Republic Act No. 9711

RA 9711, the FDA Act of 2009, amended RA 3720 and reorganized BFAD into the FDA.

41. A. Calcium gluconate injection

Calcium gluconate is less irritating than calcium chloride and is the usual IV choice; carbonate, phosphate and lactate oral forms are not for IV use.

42. A. Hydrolysis of its ethyl ester to the diacid enalaprilat

Enalapril is an ester prodrug; hepatic esterases form enalaprilat, the active dicarboxylic acid.

43. A. Ferric ammonium sulfate

Excess thiocyanate reacts with ferric ion to give a red complex; potassium chromate is used in the Mohr method and adsorption dyes in the Fajans method.

44. C. The 2-deoxysugar portion of cardiac glycosides

Keller-Killiani is specific for 2-deoxysugars such as digitoxose found in cardiac glycosides.

45. A. Losartan

ACE inhibitor cough comes from bradykinin accumulation; angiotensin receptor blockers such as losartan do not block bradykinin breakdown.

46. D. 100 : 1

For a weak acid, un-ionized/ionized = 10^(pKa - pH) = 10^(3.5 - 1.5) = 100.

47. C. 65 mL/min

CrCl = (140 - 60) x 70 / (72 x 1.2) = 5,600/86.4 = 64.8 mL/min.

48. C. Republic Act No. 9502

RA 9502 is the Universally Accessible Cheaper and Quality Medicines Act of 2008.

49. B. Formation of bismuth sulfide in the gut

Bismuth reacts with sulfide in the mouth and gut to form black bismuth sulfide, which is harmless and temporary.

50. B. It is rapidly metabolized by COMT and MAO in the gut wall and liver

As a catecholamine, epinephrine is quickly inactivated by catechol-O-methyltransferase and monoamine oxidase during first-pass metabolism.

51. C. Karl Fischer titration

The Karl Fischer reagent reacts stoichiometrically with water; loss on drying or ignition also counts other volatiles.

52. C. Anthraquinone glycosides

Anthraquinone glycosides are hydrolyzed in the colon to aglycones that stimulate peristalsis; the Borntrager test detects them.

53. B. Propranolol

Propranolol is a nonselective beta blocker; blocking beta-2 receptors can trigger bronchospasm.

54. A. 0.174 g

NaCl for 30 mL isotonic = 0.27 g; drug = 0.6 g x 0.16 = 0.096 g NaCl equivalent; 0.27 - 0.096 = 0.174 g.

55. A. Medication reconciliation

Medication reconciliation creates an accurate medication list and resolves discrepancies at transitions of care.

56. B. Republic Act No. 8203

RA 8203, the Special Law on Counterfeit Drugs (1996), penalizes the manufacture and sale of counterfeit drugs.

57. C. Ferric oxide

Calamine is zinc oxide with a small proportion of ferric oxide, which imparts the pink tint.

58. A. Three six-membered rings and one five-membered ring

The gonane skeleton has rings A, B and C (six-membered) fused to ring D (five-membered).

59. A. 3.0 x 10^-5 M

By Beer's law c = A/(eb) = 0.45/(15,000 x 1) = 3.0 x 10^-5 mol/L.

60. D. Cinchona

Cinchona bark yields quinine and quinidine; Rauwolfia gives reserpine, Papaver opium alkaloids and Erythroxylum cocaine.

61. D. Aminoglycoside ototoxicity and nephrotoxicity

Aminoglycosides accumulate in inner ear hair cells and renal proximal tubule cells, causing hearing loss and kidney injury.

62. C. One-fourth of the original

Sedimentation velocity is proportional to the square of the radius, so (1/2)^2 = 1/4.

63. B. On an empty stomach, 30 to 60 minutes before breakfast

Food, calcium, iron and fiber reduce levothyroxine absorption, so it is best taken alone on an empty stomach.

64. D. PHP 400.00

VAT-exempt price = 560/1.12 = 500.00; less 20% discount = 500 x 0.80 = PHP 400.00.

65. C. Sodium bicarbonate

Sodium bicarbonate is readily absorbed and can raise blood bicarbonate, unlike the poorly absorbed aluminum and magnesium antacids.

66. D. C-5

Barbituric acid itself is inactive; two substituents at C-5 give the lipophilicity and weak acidity needed for CNS activity.

67. D. 0.60

Rf = distance moved by spot / distance moved by solvent = 4.2/7.0 = 0.60.

68. B. Atropa belladonna

Belladonna (deadly nightshade) is a solanaceous source of tropane alkaloids; physostigmine is from the Calabar bean.

69. D. Contrast-induced kidney injury may cause metformin to accumulate and raise lactic acidosis risk

Metformin is renally cleared; if contrast impairs kidney function it can accumulate and promote lactic acidosis.

70. C. 7.2 g

Fraction of Tween = (12 - 4.3)/(15.0 - 4.3) = 0.72; 0.72 x 10 g = 7.2 g Tween 80 and 2.8 g Span 80.

71. C. Swallow with a full glass of plain water and stay upright for at least 30 minutes

Bisphosphonates can irritate the esophagus; plain water and remaining upright help the tablet reach the stomach and improve absorption.

72. D. Republic Act No. 10912

RA 10912 is the Continuing Professional Development Act of 2016.

73. C. 65 mg

Elemental iron = 325 x 55.85/278.0 = 65.3 mg, roughly 20% of the salt weight.

74. C. Procaine

Procaine is an ester of PABA and is hydrolyzed to PABA; lidocaine, bupivacaine and mepivacaine are amides.

75. D. 14.18%

Gravimetric factor = 35.45/143.32 = 0.2474; %Cl = 0.2866 x 0.2474 / 0.5000 x 100 = 14.18%.

76. C. Mentha piperita

Peppermint oil is rich in menthol; eucalyptus gives cineole, clove gives eugenol and cinnamon gives cinnamaldehyde.

77. B. Inhibition of intestinal CYP3A4, increasing simvastatin levels

Grapefruit compounds inhibit gut wall CYP3A4, raising simvastatin exposure and myopathy risk.

78. B. 30 days

t90 = 0.105/k = 0.105/0.0035 = 30 days.

79. C. Calcium in milk chelates tetracycline and reduces absorption

Tetracyclines form insoluble chelates with divalent and trivalent cations such as calcium, magnesium, aluminum and iron.

80. B. Autonomy

Autonomy is the right of a competent patient to make informed decisions about their own care.

81. B. Epsom salt

MgSO4.7H2O is Epsom salt; Glauber's salt is sodium sulfate decahydrate and Rochelle salt is potassium sodium tartrate.

82. C. A benzene ring fused to a seven-membered ring with two nitrogens

Benzodiazepines contain a benzene ring fused to a 1,4-diazepine ring, usually with a 5-aryl substituent.

83. A. Glacial acetic acid

Glacial acetic acid enhances the basicity of weak bases, and perchloric acid in this solvent is a very strong acid, giving a sharp endpoint.

84. C. Taxus brevifolia

Paclitaxel came from the Pacific yew; podophyllotoxin, camptothecin and colchicine come from the other plants.

85. C. Use an additional non-hormonal method because contraceptive levels may fall

Rifampicin is a potent inducer of hepatic enzymes and speeds metabolism of the hormones, risking contraceptive failure.

86. A. It forms unstable polymorphs that melt too low and solidify poorly

Overheated theobroma oil forms metastable crystal forms with lower melting points, so suppositories fail to set properly.

87. D. Increased risk of bleeding

Aspirin inhibits platelet function and can irritate the gastric mucosa, adding to warfarin's anticoagulant effect.

88. A. Contact the prescriber to clarify before dispensing

Pharmacists have a professional duty to verify questionable orders with the prescriber to prevent harm.

89. D. Selenium sulfide

Selenium sulfide slows epidermal cell turnover and acts against Malassezia; aluminum chlorohydrate is an antiperspirant.

90. A. Acetic anhydride

Acetic anhydride acetylates the phenolic hydroxyl of salicylic acid; methanol with salicylic acid would instead give methyl salicylate.

91. D. Calcium

Calcium gives a brick-red flame; sodium is persistent yellow, potassium violet and barium yellowish green.

92. B. Catharanthus roseus

The Madagascar periwinkle, Catharanthus roseus, is the source of the dimeric vinca alkaloids used in cancer chemotherapy.

93. B. 25 mg

18 h is three half-lives: 200 x (1/2)^3 = 25 mg.

94. D. Lubricant

Magnesium stearate reduces friction between the tablet and die wall during ejection; excess can slow dissolution.

95. C. Methyldopa

Methyldopa has long safety experience in pregnancy; drugs acting on the renin-angiotensin system can cause fetal kidney damage.

96. B. Decline, because patient information is confidential

Patient medication records are confidential and may be disclosed only with consent or as required by law.

97. D. Converting tooth hydroxyapatite into more acid-resistant fluorapatite

Fluoride substitutes for hydroxide in enamel apatite, forming fluorapatite that resists acid demineralization.

98. B. A nitrate ester of glycerol

Glyceryl trinitrate is formed by esterifying the three hydroxyls of glycerol with nitric acid, so it is an ester, not a true nitro compound.

99. A. Good precision with a systematic error

Close agreement among replicates means precision; a consistent offset from the true value points to a determinate (systematic) error.

100. D. Tannins

Tannins precipitate proteins such as gelatin and give blue-black or green-black colors with ferric salts.

101. C. 350 mg

Loading dose = Vd x Cp = (0.5 x 70) L x 10 mg/L = 350 mg.

102. D. Cellulose acetate phthalate

Cellulose acetate phthalate is insoluble in acidic gastric fluid but dissolves at intestinal pH, making it an enteric coating.

103. A. Their annual consumption value

ABC analysis ranks items by annual usage value; class A items are few but account for most expenditure. VEN analysis ranks by clinical importance.

104. A. The last day of September 2027

When only the month and year are given, expiry is understood to be the last day of that month.

105. A. Silver nitrate

Silver nitrate solution was historically instilled to prevent gonococcal ophthalmia neonatorum; silver salts darken as they are reduced to metallic silver.

106. D. Cyanocobalamin

Vitamin B12 (cyanocobalamin) has a central cobalt ion in a corrin ring; it is the only vitamin containing a metal.

107. D. The most polar compound

The nonpolar stationary phase retains lipophilic compounds longer, so polar analytes elute earliest.

108. C. Saponins

Saponins are surface-active glycosides that foam in water and lyse erythrocyte membranes.

109. A. Flumazenil

Flumazenil is a competitive antagonist at the benzodiazepine site of the GABA-A receptor.

110. D. 31 drops per minute

1,000 mL x 15 gtt/mL / 480 min = 31.25, about 31 drops per minute.

111. B. Tall man lettering

Tall man lettering uses selective capitals to highlight differing parts of look-alike names.

112. D. Professional Regulation Commission

The Board of Pharmacy operates under the PRC, which administers licensure and professional regulation.

113. D. Zinc oxide

Zinc oxide is a mild astringent, protectant and opaque white pigment used in ointments, pastes and dusting powders.

114. C. Glucuronidation

Glucuronide conjugation via UDP-glucuronosyltransferase is the predominant phase II pathway; hydroxylation is a phase I reaction.

115. B. Nitrogen

Kjeldahl digestion converts organic nitrogen to ammonium, which is distilled as ammonia and titrated.

116. D. Niyog-niyogan (Quisqualis indica)

Niyog-niyogan seeds are used to expel Ascaris; overdosing can cause hiccups and vomiting.

117. B. Peripheral neuropathy

Isoniazid increases vitamin B6 loss; supplementation prevents peripheral neuropathy. Orange urine is from rifampicin, optic neuritis from ethambutol and hyperuricemia from pyrazinamide.

118. C. 20.1 mEq

mEq = mg x valence / MW = 1,500 x 1 / 74.55 = 20.1 mEq.

119. C. Food and Drug Administration

The Philippine FDA maintains the national pharmacovigilance system that receives and evaluates ADR reports.

120. D. Republic Act No. 5921

RA 5921, the Pharmacy Law of 1969, was the governing law until it was repealed by RA 10918.

Topics to review

• Pharmaceutical calculations and dosage forms

• Pharmacology and therapeutic decision-making

• Medicinal chemistry and pharmacognosy

• Quality assurance, dispensing and pharmacy law

Online question banks and study resources

Pharmacy - Pass Harbor (Question bank)

Official PRC board information

Current PRC exam programs

Independent study material prepared by Board Exam Desk.