- **An elderly patient is suffering from depression was given St. John's Wort. Which of the following drugs if administered concomitantly will have a clinically significant interaction?**

  A. Simvastatin
  B. Salbutamol
  C. Sertraline
  D. Gliclazide

- **The high prevalence of osteoporosis in the elderly results which incidence in geriatric population?**

  A. Hyperkalemia
  B. Bone fractures
  C. Urinary retention
  D. Memory impairment

- **An elderly man presented to the Emergency Room with dizziness, altered consciousness, respiratory depression and rhabdomyolysis. He was recently prescribed a medication for inability to sleep.**
  Which is the most likely drug toxicity?

  A. Benzodiazepines
  B. Acetaminophen
  C. Salicylate
  D. Opioid

- **A man weighs 78 Kg is to be administered one gram vancomycin intravenously every 12 hours for seven days. The half-life of vancomycin is approximately eight hours and volume of distribution is approximately 1 L/ Kg. What is the expected average steady state plasma concentration in mg/L of vancomycin?**

  A. 5
  B. 7
  C. 13
  D. 19

  Ans: $Cpss=\frac{Dose}{Vd.Ke.T}=\frac{1000\,mg}{78X0.0867X12}=12.3 \sim 13mg/L$

- **An antibiotic has an elimination rate constant of 0.05 per hour and apparent volume of distribution of 0.6 L/Kg. What will be the clearance value in a 75 Kg adult?**

  A. 1 .75 L/hrs
  B. 2.25 L/hrs
  C. 3.55 L/hrs
  D. 4.25 L/hrs

  Ans: Cl =Vd.ke = (0.6 X 75) X 0.05 = 2.25 L/hrs

- **A 45 year-old patient of rheumatoid arthritis has been prescribed naproxen 250 mg enteric coated tablets twice daily. The elimination half-life of naproxen is 12 hours. How much time it would take to reach the 95% of steady state plasma concentration?**

  A. 22.3 hrs
  B. 38 .7 hrs
  C. 51 .6 hrs
  D. 66.5 hrs

  Ans: Time to reach 95% steady state conc. require 4.3 half-lives (t1/2) → 4.3 X 12 = 51.6 h

- **A 35 year-old individual is receiving 20 mg of propranolol hydrochloride four times daily as a prophylaxis to migraine attacks. If the drug has only 25% bioavailability due to extensive first pass effect. What amount of the drug reaches the systemic circulation after each dosing?**

  A. 2.5 mg
  B. 5.0 mg
  C. 7.5 mg
  D. 10 mg

  Ans: $F = \frac{mass\ of\ drug\ delivered\ to\ plasma}{total\ mass\ of\ the\ drug\ administraion} = Mass = 25\%\ X\ 20\ mg = 5\ mg$

- **An NSAID has an oral dose of 200 mg, bioavailability of 80% and elimination half-life of four hours. How much drug will be remaining in the body after 12 hours?**

  A. 20 mg
  B. 40 mg
  C. 60 mg
  D. 80 mg

  Ans: Mass = 200X80%=160mg
  Total hrs. =12h
  (After 4h will reach its half "80mg" after another 4 h "40 mg" after another 4h "20 mg")

- **Which one of the medications can be dispensed without prescription?**

  A. Insulin vials
  B. Metoprolol 50 mg tablet
  C. Ibuprofen 400 mg tablet
  D. Aripiprazole 10 mg tablet

- **What is the indication of pseudoephedrine?**

  A. Nasal congestion
  B. Pyrexia
  C. Allergy
  D. Pain

- **What is the appropriate recommendation for diclofenac oral tablet use?**

  A. With food or milk to decrease GI upset
  B. Take with fatty meals to enhance absorption
  C. Two hours after meals to avoid delay in absorption
  D. Four hours before meals to prevent drug-food interaction

- **In which one of the following conditions estrogen containing contraceptive is contraindicated?**

  A. Depression
  B. Uncomplicated diabetes
  C. Controlled hypertension
  D. 40 year-old women who smoke

- **A 31 year-old, three months pregnant woman, develops urinary tract infection. What is the most appropriate antimicrobial therapy?**

  A. Tetracycline
  B. Ciprofloxacin
  C. Nitrofurantoin
  D. Sulfamethoxazole and trimethoprim

- **A 38 year-old man with invasive aspergillosis is receiving voriconazole. Which of the following disease states warrant dose adjustment?**

  A. Colon cancer
  B. Renal failure
  C. Hepatic cirrhosis
  D. No dose adjustments is needed for voriconazole

  "Need further confirmation"

- **Which of the following substances is classified as a weak electrolyte?**

  A. Urea
  B. Dextrose
  C. Creatinine
  D. Calcium chloride

Calcium chloride is strong electrolyte, the other options are non-electrolytes. I think there's something wrong in the ques!

- **Which of the following bases can be used to prepare rectal suppositories?**

  A. Sucrose
  B. Cocoa butter
  C. Methylcellulose
  D. Propylene glycol

- **Which of the following replacement fluids is an isotonic solution?**

  A. 3% Saline
  B. 5% dextrose
  C. Ringers lactate
  D. 1/2 strength normal saline

- **The pharmacy received a call from the Intensive Care Unit nurse who has a patient receiving an intravenous solution containing amoxicillin. The doctor has now ordered morphine to be injected into the Y site of the intravenous solution every 4 hours. The nurse wants to know if these drugs will be compatible at the Y site. From which references the pharmacist should provide the required information?**

  A. Red book
  B. Merck manual
  C. Review of natural products
  D. Handbook on injectable drugs

- **Which of the following parenteral anticoagulants require routine monitoring of coagulation lab parameters?**

  A. UFH intravenously
  B. IJFH subcutaneously
  C. Enoxaparin subcutaneously
  D. Fondaparinux subcutaneously

- **What is the possible serious side effect that is common amongst all anticoagulant agents?**

  A. Hypokalemia
  B. Major Bleeding
  C. Liver Dysfunction
  D. Renal Dysfunction

- **Stroke or previous TIA is a contraindication to the use of which antiplatelet agent?**

  A. Aspirin
  B. Prasugrel
  C. Ticagrelor
  D. Clopidogrel

- **A 61 year-old woman with deep vein thrombosis is on heparin 1200 units/ hour. The nurse asks for heparin dosing recommendation after receiving the hematology test this morning (see image and lab results).**

What is the best recommendation based on hospital heparin protocol?

A. Keep the same dose
B. Decrease the infusion rate to 1100/ hour
C. Hold the infusion for 60 minutes, then resume with 1000 units/hour
D. Hold the infusion for 60 minutes, then resume with 900 units/ hour

Test Result Normal Values
APTT 240 (30-40 sec)
INR 1.1 (0.8-1.2)
Prothrombin time 12 (10-13 sec)

Ans: aPTT is very high (> 93 sec) so the infusion should be stopped for 1 hour & dose should be reduced by 200 units /hr.

Heparin Dosing for VTE Treatment Example

aPTT	aPTT	Dose Change	Additional action
< 38 s	< 1.2x control	+ 4 units/kg/hr	Rebolus 80 units/kg
38-47 s	1.2-1.5x control	+ 2 units /kg/hr	Rebolus 40 units/kg
47-71 s	**1.5-2.3x control**	**0**	**0**
71-93 s	2.3-3.0x control	-2 units /kg/hr	0
> 93 s	> 3.0x control	-3 units /kg/hr	Stop infusion x1hr

• Results: 89% of patients had aPTT in the therapeutic range within 24 hours

Ann Intern Med 1993; 119:874-81.

- **Following is the prescription for a six year-old boy:**

Rx

Levothyroxine 12 micrograms

Syrup tolu 5 ml

Syrup wild cherry qs ad 5 ml

d. t. p #30

How many micrograms of levothyroxine should be used to dispense this prescription?

A. 12 mcg
B. 24 mcg
C. 28.8 mcg
D. 34.8 mcg

Not sure 100 % about the Ans: 30 tabs X 12 mcg =360 mcg ÷ 12.5 mcg (the recommended starting dose for child) = 28.8 mcg

- **An ophthalmic drop of drug X has 0.1% concentration. Express this concentration of drug X in parts per million?**

  A. 10 ppm
  B. 100 ppm
  C. 1000 ppm
  D. 10000 ppm

  1 ppm = 10^{-6}, 0.001 ÷ 10^{-6} = 1000 ppm

- **A patient, who is on warfarin therapy, is using garlic supplements .In order to see any interaction, which reference would be most appropriate?**

  A. Red book
  B. Merck manual
  C. Review of natural products
  D. Handbook on injectable drugs

- **Which of the following drugs should be avoided in patients with reduced ejection fraction heart failure?**

  A. Hydralazine
  B. Paracetamol
  C. Pioglitazone
  D. Spironolactone

  Thiazolidinediones cause fluid retention ∴ increase HF risk.

- **Which the following of P2Y12 receptor inhibitors exhibit the most variable anti-platelet effects?**

  A. Prasugrel
  B. Ticagrelor
  C. Ticlopidine
  D. Clopidogrel

  "Need further confirmation"

- **Which of the following is a high intensity statin therapy?**

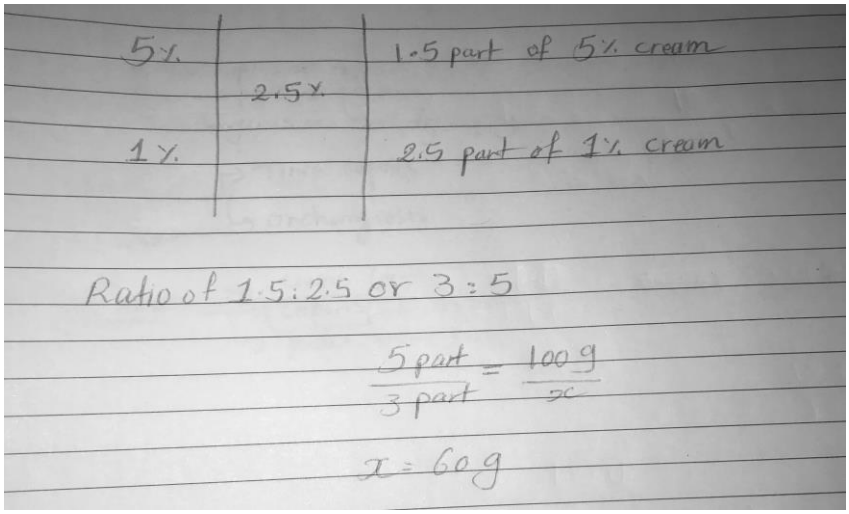
  A. Lovastatin 40 mg daily
  B. Pravastatin 40 mg daily
  C. Simvastatin 40 mg daily
  D. Atorvastatin 40 mg daily

- **Which NSAID permanently inactivates thromboxin-A2 synthesis in platelets?**

  A. Aspirin
  B. Naproxen
  C. Celecoxib
  D. Ibuprofen

- **How many grams of 5% diclofenac cream should be mixed with 100 g of 1% cream to make a 2.5% diclofenac cream?**

  A. 30 g
  B. 60 g
  C. 90 g
  D. 120 g



- **A 25-year-old woman, on thyroxine for hypothyroidism, become pregnant. She now complains of constant fatigued. What is the most proper recommendation?**

  A. Increase the dietary iodine
  B. Double the dose of thyroxine
  C. Do nothing, fatigue is normal during pregnancy
  D. Adjust thyroxine dose based on serum TSH during the first trimester

- **Which of the following of anti-anginal agents reduce myocardial ischemia by dilating coronary arteries?**

  A. Atenolol
  B. Amlodipine
  C. Hydrochlorothiazide
  D. Isosorbide dinitrate

- **Which diuretic listed below would have the greatest blood pressure lowering effect when given in patients with an eGFR below 60 ml/min?**

  A. Chlorthalidone 25 mg daily
  B. Spironolactone 25 mg daily
  C. Triamterene 25 mg daily
  D. Furosemide 40 mg daily

- **What is the best time to take simvastatin for its maximal effect?**

  A. At bedtime
  B. Before lunch
  C. Before breakfast
  D. Hour after breakfast

- **The following pharmacy received prescription for dispense:**

Rx **Menthol 0.6 %** **Simple syrup as ad 100 ml**

How many grams of menthol should be used to prepare this prescription?

A. 6
B. 60
C. 0.6
D. 1.2

- **The pharmacy has received a prescription for 100 ml of 10 % w/v calcium chloride solution. How many Milliosmoles of calcium chloride are needed to prepare this prescription (Calcium chloride molecular weight = 147)?**

A. 30
B. 180
C. 300
D. 500

Ans: Milliosmoles/L = $\frac{mass\ (g)}{Mwt\ (\frac{g}{ml})}$ *X no. of particles X 1000 = Milliosmoles/L =* $\frac{10\ g}{147\ (\frac{g}{ml})}$ *X 3 X 1000=204.08.*
BTW 110.98 g/mol is the actual Mwt for $CaCl_2$ *and when we calculate it by the same above formula it will equal 270.31 ~ 300 mOsmol (so I think there's a mistake in this Qst)*

- **Which of the following side effects is very common with dihydropyridine calcium-channels blockers?**

A. Bradycardia
B. Pericarditis
C. Pulmonary edema
D. Swelling of the ankles

- **A 58-year-old man is admitted in the hospital for DVT treatment. The physician is initiating unfractionated heparin and warfarin therapy. The physician is asking the pharmacist "Which the following about the duration of anticoagulants overlapping in DVT treatment?" What should be the pharmacist recommendation?**

A. Minimum of 2 days of heparin and INR greater than 1.5
B. Minimum of 5 days of heparin and INR greater than 2.0
C. Minimum of 7 days of heparin and INR greater than 2.5
D. Minimum of 10 days of heparin and INR greater than 3.0

- **Which of the following could lead to decrease PT/INR in a patient on warfarin therapy?**

  A. Decrease in consumption of dietary vitamin K
  B. Initiation of phenytoin, carbamazepine,or rifampin
  C. Hypermetabolic states like fever, illness, hyperthyroidism
  D. Initiation of amiodarone,sulfamethoxazole, or metronidazole

- **Which of the following points should be emphasized when counseling a patient on the proper use of sublingual nitroglycerin tablets?**

  A. Chew and swallow the tablet
  B. Stand up before taking a dose since dizziness can occur
  C. Store tablets in the original glass container and keep with you at all times
  D. If chest pain does not improve at all within 2 minutes of taking a dose, go to the Emergency Department immediately

- **A 24-year-old man is diagnosed with psychosis. He agrees to start a drug therapy, however, he is asking for the least sedating medication. Which of the following drugs will be most appropriate?**

  A. Clozapine
  B. Quetiapine
  C. Olanzapine
  D. Risperidone

- **Which of the following medication is most appropriate to use in a 71-year-old man to treat extrapyramidal symptoms?**

  A. Benztropine
  B. Haloperidol
  C. Donepezil
  D. Ibuprofen

- **What is the maximum day supplying a pharmacist can dispense for diazepam prescription?**

  A. 7 days
  B. 14 days
  C. 21 days
  D. 30 days

- **Which of the following medications can be used for narcotic addiction?**

  A. Codeine
  B. Morphine
  C. Methadone
  D. Hydrocodone

- **Which of the following resources should be considered when promoting pharmaceutical products in Saudi Arabia?**

  A. Code of ethics for pharmacists
  B. Ministry of health pharmacy code
  C. Unethical behavior of pharmacists
  D. Saudi code of pharmaceutical promotional practices in KSA

- **An order for amoxicillin 500 mg three times daily for 7 days is prescribed. The pharmacy only stocks amoxicillin 250 mg capsules. How many capsules the pharmacist should dispense?**

  A. 21
  B. 42
  C. 64
  D. 80
  Ans: 500 mg /250mg =2 X 3times X 7 days =42 capsules

- **What is the total maximum daily dose of the over-the-counter paracetamol?**

  A. 2 g
  B. 4 g
  C. 6 g
  D. 8 g

- **What is the total maximum daily dose of over-the-counter Ibuprofen?**

  A. 800 mg
  B. 1200 mg
  C. 2000 mg
  D. 3000 mg

- **Which of the following over-the-counter medications can be dispensed to a 31-year-old man for mild dry cough?**

  A. Guaifenesin
  B. Phenylephrine
  C. Pseudoephedrine
  D. Dextromethorphan

- **Which of the following anti-diabetic medications should be used as a firstline agent in patients with pre- diabetes?**

  A. Insulin
  B. Glyburide
  C. Metformin
  D. Pioglitazone

- **What is the preferred anticoagulant therapy during hemodialysis procedure?**

  A. Unfractionated heparin
  B. Rivaroxaban
  C. Enoxaparin
  D. Dabigatran

- **Which of the following medications can be used to lower the elevated serum potassium concentration?**

  A. Dextrose
  B. Sevelamer
  C. Kayexalate
  D. Sodium bicarbonate

- **A 44-year-old man presents to his doctor for blood pressure check. His blood pressure reading is 169/95 mmHg. He has been seeing his doctor several times in the last three months for blood pressure checks and lab tests. Although his lab tests are fine, the doctor recommended him to start blood pressure reducing medicines. Which of the following pharmacotherapy regimens would be most appropriate?**

  A. Amlodipine 5 mg with Lisinopril 10 mg in one pill, daily
  B. Lisinopril 10 mg with Atenolol in one pill, twice daily
  C. Chlorthalidone 25 mg with Spironolactone 25 mg daily
  D. Furosemide 40 mg twice daily and Doxazosin 2 mg daily

- **A patient comes to the pharmacy with two cold medications asking if both can be used together. Drug A contains desloratadine 5 mg and pseudoephedrine 30 mg per tablet and Drug B contains diphenhydramine 25 mg and pseudoephedrine 30 mg per tablet. What should be the pharmacist response?**

  A. Both can be used together as they have synergistic effect
  B. Both should be avoided as they have unsafe ingredients
  C. Use one of them as they are from same drug class
  D. Use drug A as it has better ingredient

- **What is the appropriate mode of taking chewable aspirin tablet?**

  A. Should be chewed
  B. Should be swallowed
  C. Can be chewed or swallowed
  D. Should crushed and dissolved in 30 ml of water

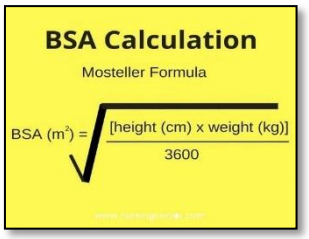
- **How many milliliters of 0.9% normal saline can be prepared from 40 gram of NaCl?**

  A. 1000
  B. 2222
  C. 4444
  D. 6666

  Ans: % w/v $= \frac{m(g)}{V\ (ml)} \rightarrow V\ (ml) = \frac{40\ g}{0.9\%} = 4444.44\ ml$

- **A 42 year-old woman with breast cancer is prescribed Vincristine at a dose of 1.5 mg/meter square. Her weight is 72 kg and height is 170 cm**
  What is the dose the pharmacy should prepare?

  A. 2 mg
  B. 2.25 mg
  C. 2.5 mg
  D. 2.75 mg



Ans: BSA= $\sqrt[2]{\frac{Ht(cm)X\ Wt(kg)}{3600}} = \sqrt[2]{\frac{170\ X\ 72)}{3600}}$ *=1.84 multiply it by the dose = 1.84 X 1.5=2.76 mg*

A content uniformity test for tablets is endorsed by the United States Pharmacopea to ensure which quality?

A. **Bioavailability**
B. **Stability**
C. **Solubility**
D. **Potency**

- **What is the bioavailability (F) of a Diclofenac intramuscular injection?**

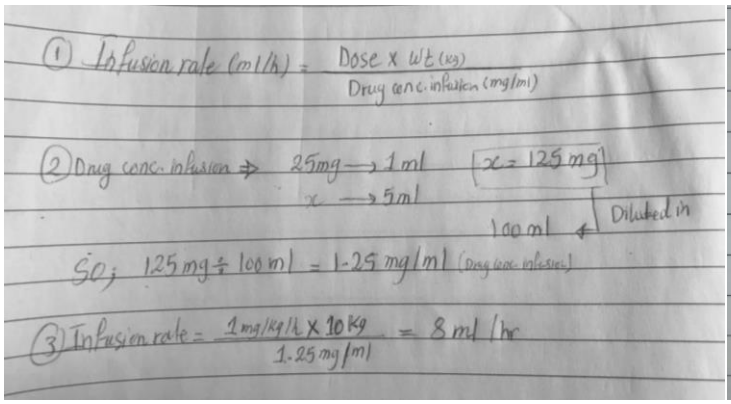
A. **25 %**
B. **50%**
C. **75%**
D. **Approximately 100%**

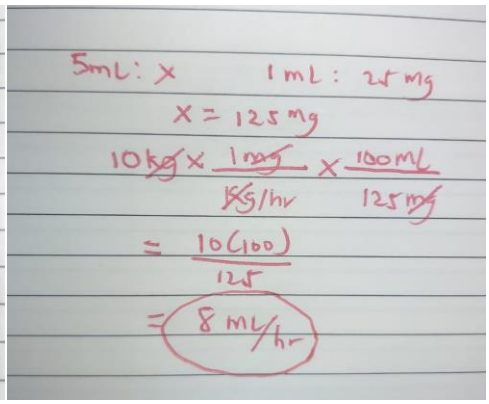
- **At which pH aspirin (pKa 3.5) will be most soluble?**

A. **2**
B. **3**
C. **5**
D. **6**

- **A two year-old boy who weighs 10 Kg is prescribed Drug X as 1 mg/ Kg/ hour infusion. The pharmacy prepares Drug X using 5 ml vial of 25 mg/ml concentration diluted in normal saline to make 100 ml solution. What should be the rate of infusion (in ml/ hour)?**

A. **2**
B. **4**
C. **6**
D. **8**





- **A 54 year-old man is diagnosed with stage 1 hypertension. His left ventricular ejection fraction is less than 40%. What would be the most appropriate drug for him?**

A. **Amlodipine**
B. **Lisinopril**
C. **Spironolactone**
D. **Hydrochlorothiazide**

- **A 34 year-old woman presents to the physician with upper respiratory infection. Several years ago she experienced an episode of hypotension and bronchospasm following Ampicillin IV administration. What would be the most appropriate empirical therapy?**

  A. Cefaclor
  B. Nafcillin
  C. Amoxicillin
  D. Erythromycin

- **Which antidepressant drug must be avoided in a 21 year-old female with a history of seizure disorder?**

  A. Amitriptyline
  B. Citalopram
  C. Paroxetine
  D. Bupropion

  Ans: The only one contraindicated in seizure disorder.

- **Which of the following therapies is considered as for omeprazole 20 mg daily in a peptic ulcer patient?**

  A. Esomeprazole 40 mg daily
  B. Pantoprazole 40 mg daily
  C. Cimetidine 800 mg daily
  D. Ranitidine 300 mg daily

PPI Agent	Defined Daily Dose Equivalent, mg
Omeprazole	20
Pantoprazole	40
Esomeprazole	30
Lansoprazole	30
Rabeprazole	20

Abbreviation: PPI, proton pump inhibitor.

- **What is the side effect associated with calcium carbonate containing antacids?**

  A. Weight gain
  B. Constipation
  C. Hypercalcemia
  D. Increase salivation

- **Which one of the following medications can cause weight loss?**

  A. Orlistat
  B. Olanzapine
  C. Atorvastatin
  D. Glibenclamide

- **A mother presents to the pharmacy requesting an antipyretic for her one month-old boy who has a low grade fever. Which of the following recommendations should be most appropriate?**

  A. Take the boy to the hospital immediately
  B. Paracetamol drop dosed at 20 mg/kg
  C. Ibuprofen syrup dosed at 12 mg/kg
  D. Baby aspirin suppository

  Ans: In children < 3 months of age, call your child's provider first before giving them medicines.

- **How do the proton pump inhibitors exert their pharmacological action?**

  A. Increases gastrointestinal motility
  B. Inhibits epithelial growth factor in the stomach
  C. Stimulates histamine-2 receptors in the gastric parietal cells
  D. Inhibiting H/K-adenosine triphosphate in gastric parietal cells

- **What is the most important ingredient in maternal multi-vitamin products?**

  A. Iron
  B. Copper
  C. Folic acid
  D. Beta-carotene

  Ans: Folic acid is best known for aiding in fetus development and preventing birth defects.

- **A patient presents to the pharmacy complaining that few days after starting benzoyl peroxide cream and soap the acne got worse. What should be the pharmacist advice?**

  A. Continue the soap
  B. Discontinue the soap
  C. Continue the cream and soap
  D. Discontinue the cream and soap

  Ans: During the first 3 weeks you are using benzoyl peroxide your acne may seem to get worse before it gets better. If your skin problem has not improved within 4 to 6 weeks, check with your doctor.

- **A 54 year-old man with reduced ejection fraction heart failure presented to the pharmacy with mild pain in his knees and requesting an OTC pain killer.**
  Which of the following is the best OTC medication?

  A. Naproxen
  B. Celecoxib
  C. Ibuprofen
  D. Paracetamol

  Ans: Paracetamol is the first line treatment for mild pain and safest in HFrEF.

- **Which of the following is a benefit of the formulary system?**

  A. Decreased cost
  B. Increased safety
  C. Less patient confusion
  D. Physician satisfaction

- **Which of the following laxatives have the slowest onset of action?**

  A. Psyllium
  B. Glycerin
  C. Bisacodyl
  D. Mike of Magnesia

- **Why should the pharmacists be aware of look-alike, sound-alike medications during the medications management process?**

  A. **They have narrow therapeutic index**
  B. **They have similar therapeutic action**
  C. **They can be mistaken for one another**
  D. **They are controlled medication and should be dispensed in accordance with MOH rules and regulations**

- **Which one of these items is a function of the hospital Pharmacy and Therapeutics Committee?**

  A. **Develops hospital guidelines on hand hygiene**
  B. **Meets with manufacturer representatives to discuss new drugs**
  C. **Develops policies on the use of medications in the institution**
  D. **Discussed the most recent articles published in New England Journal of Medicine and JAMA**

- **Which of the following counseling points is very important to discuss with patients presenting with constipation?**

  A. **Stay in the bathroom for at least 30 minutes in the morning**
  B. **Increase water intake throughout the day**
  C. **Decrease fiber intake in your diet**
  D. **Increase fat in your diet**

- **What is the best time to take Simvastatin for its maximal effect?**

  A. **At bedtime**
  B. **Before Lunch**
  C. **Before breakfast**
  D. **Hour after breakfast**

- **What is the most common side effect(s) of niacin that should be mentioned to patients during counseling?**

  A. **Chills**
  B. **Tinnitus**
  C. **Dry cough**
  D. **Flushing and dyspepsia**

- **Which of the following antiarrhythmic drugs may cause iodine- hypothyroidism?**

  A. **Digoxin**
  B. **Quinidine**
  C. **Amiodarone**
  D. **Propranolol**

- **Which of the following is the most suitable method of drug delivery for infants?**

  A. Inhalers
  B. Evohalers
  C. Turbohalers
  D. Nebulizers

- **What information should be provided to patients starting on diphenhydramine?**

  A. May cause diarrhea
  B. May cause drowsiness
  C. Should be taken in the morning
  D. Should be taken with at least 200 ml of orange juice

- **A 65 year-old man with a history of hypertension, hyperlipidemia, erectile dysfunction, and newly diagnosed diabetes mellitus type II, is on metformin 1000 mg twice daily, lisinopril 10 mg daily, atorvastatin 40 mg once daily, and sildenafil 25 mg as needed. He comes to the pharmacy with a new prescription for metoprolol tartrate 25 mg twice daily. Which one of the following advices should be given?**

  A. Use of metoprolol tartrate may worsen erectile dysfunction
  B. Metoprolol may mask symptoms of hypoglycemia except for sweating
  C. Recovery time from hypoglycemia will be shorter with metoprolol tartrate
  D. Since metoprolol tartrate is $ß_1$ selective blocker, it will not mask symptoms of hypoglycemia.

- **Which of the following NSAIDs has the gastrointestinal side effect?**

  A. Naproxen
  B. Meloxicam
  C. Ibuprofen
  D. Diclofenac

- **A patient asks the pharmacist to verify bottle of his medicine. The label was attached to the wrong medicine and dispensed to the patient by anotherpharmacist. What should be the most appropriate response?**

  A. Apologize and give the correct medication
  B. Apologize and give the correct medication and report error to the ministry of the health
  C. Apologize and give the correct medication and report error to themedication safety officer
  D. Apologize and give the correct medication and ask to report error tothe hospital administration

- **Which of the following medications can be used to lower the elevated serum potassium concentration?**

  A. Dextrose
  B. Sevelamer
  C. Kayexalate
  D. Sodium

- **In patients who require dual antiplatelet therapy, what is the recommended maintenance dose of aspirin when used in combination with ticagrelor?**

  A. 325 mg
  B. 162 mg
  C. 81 mg
  D. 50 mg

  Ans: The use of aspirin above 100 mg decreases effectiveness of ticagrelor

- **Where can pharmacist find out the rules and regulations for pharmacy practice in the Kingdom of Saudi Arabia?**

  A. Ministry Of Health
  B. Saudi Food and Drug Authority
  C. Saudi Pharmaceutical Association
  D. Saudi Commission for Health Specialist

  Ans: Pharmacy practice–related activities, however, are organized and supervised by the Department of Pharmaceutical Care in the MOH.

- **How many grams of sodium chloride is present in 500 ml of 1/2 strength normal saline?**

  A. 2.00 g
  B. 2.25 g
  C. 2.50 g
  D. 5.00 g

  Ans: Normal saline contain 0.9% Nacl (0.9 g in 100 ml)
  So; ½ strength= 0.9/2=0.45 g → $\frac{0.45\ g}{100\ ml}=\frac{X\ (g)}{500\ ml}$ → *X= 2.25 g*

- **How many milliliters of amoxicillin 250 mg / 5 ml suspension should be administered to a three-years-old boy who was prescribed 130 mg of amoxicillin?**

  A. 2.0
  B. 2.2
  C. 2.4
  D. 2.6

  Ans: $\frac{250\ mg}{5\ ml}=\frac{130\ mg}{X\ (ml)}$ → *X= 2.6 ml*

- **A 78 year-old man recently had acute myocardial infarction and had a drug eluting stent placed. He has a history of hypertension, hypertriglyceridemia, and asthma. What would be the recommendation about anti-platelet therapy in addition to clopidogrel 75 mg daily?**

  A. Chewable aspirin 81 mg daily
  B. Chewable aspirin 325 mg daily
  C. Enteric coated aspirin 81 mg daily
  D. Enteric coated aspirin 325 mg daily

  Ans: Regular aspirin is quickly dissolved and absorbed in the stomach. Thus, enteric-coated aspirin may not be as effective as regular aspirin at reducing blood clot risk.

- **An 88 year-old frail woman with osteoarthritis has difficulty in walking and pain. She has no other medical history and has failed numerous aids to help her with the pain. Which of the following drugs is the best recommendation?**

  A. Acetaminophen
  B. Glucosamine D
  C. Celecoxib
  D. Ibuprofen

  Ans: Acetaminophen is first line therapy for pain relief, if the pain still uncontrolled we have to go for NSAIDs. Glucosamine D isn't a drug it considered Non-pharmacological therapy & they mentioned that she already used numerous aids & failed, so it will be useless alone in that case.

- **A 48 year-old women with rheumatoid arthritis and on ibuprofen and ranitidine for three months has been advised to start a DMARD therapy. Which of the following would be the recommended DMARD therapy?**

  A. Methotrexate 7.5 mg daily with folic acid 5 mg daily
  B. Methotrexate 7.5 mg daily with folic acid 5 mg monthly
  C. Methotrexate 7.5 mg weekly with folic acid 5 mg weekly on any other day
  D. Methotrexate 7.5 mg weekly with folic acid 5 mg weekly on the same day

  Ans: Pts. with RA who are taking methotrexate should also take folic acid to help prevent or reduce adverse effects caused by methotrexate (r.dose= 5 mg once weekly on day after methotrexate).

- **A 58-year-old man is diagnosed with deep vein thrombosis. He has a history of type-2 diabetes, hypertension and renal impairment with GFR of 29 ml/min. his weight is 70 kg. What would be the recommended dose of low molecular weight heparin?**

  A. 1 mg/kg subcutaneously once daily
  B. 1.5 mg/kg subcutaneously once daily
  C. 1 mg/kg subcutaneously every twelve hours
  D. 1.5 mg/kg subcutaneously every twelve hours

  Ans: If eGFR < 30 ml/min reduce the dose from 1.5 mg/kg OD to 1 mg/kg OD

- **A 78-year-old woman with a history of atrial fibrillation and heart failure is on amiodarone, ACEI and ß-blocker. She has been started on digoxin to improve symptoms and exercise intolerance. She has a normal renal function. What would be the most appropriate dose of digoxin per day?**

  A. 250 mcg
  B. 125 mcg
  C. 62.5 mcg
  D. 31.25 mcg

- **A 72-year-old man with a history of hypertension and COPD has EKG finding suggestive of irregular rhythm (see vitals).**

Blood pressure 135/80 mmHg **Heart rate 80/min**

  What is the most appropriate drug to manage his atrial fibrillation?

  A. Digoxin
  B. Verapamil
  C. Metoprolol
  D. Warfarin (Target INR of 2-3)

- **A 52-year-old woman with NYHA Class III Heart Failure was started on lisinopril 40 mg/day and carvedilol 25 mg BID. She is recently complaining of dizziness.**

Blood pressure 100/70 mmHg **Heart rate 70/min**

  What is the best approach for Heart failure and her symptoms?

  A. Decrease carvedilol dose
  B. Decrease lisinopril dose
  C. Stop lisinopril
  D. Stop carvedilol

- **A 26-year-old man is coughing up greenish yellow sputum. The doctor thinks it is of viral origin and decides not to prescribe antibiotics. The doctor also recommends that he sees the pharmacist for some cough mixture. Which of the following active ingredients would be best in the cough mixture?**

  A. Codeine
  B. Guaifenesin
  C. Pholcodine
  D. Dextromethorphan

- **A 56-year-old man with a history of epilepsy well controlled with phenytoin 100 mg TID, has a nasogastric tube placed for recent stroke. The nurse requested phenytoin suspension. She is confused with the labeling on the bottle which reads phenytoin base 30 mg/ 5 ml and his original tablets reads phenytoin sodium 100 mg. What would be the daily dose of phenytoin suspension?**

  A. 100 mg
  B. 270 mg
  C. 300 mg
  D. 900 mg

  "Need further confirmation"

- **An agitated women calls the pharmacy and tells that she has burned her hand while retrieving a baking tray from hot oven. What would be the best first aid?**

  A. Apply topical NSAID cream
  B. Apply antimicrobial wound dressing
  C. Wash the hand with tap water for 20-30 minutes
  D. Immerse the hand in ice cold water for 30 minutes.

- **A 59-year-old woman with a history of bronchial asthma has been diagnosed with open angle glaucoma. The doctor is thinking about prescribing a topical eye drop. What would be the best topical eye drops?**

  A. Timolol
  B. Pilocarpine
  C. Brimonidine
  D. Latanoprost

- **A 75 year-old man has recently been diagnosed with open angle glaucoma.He is prescribed topical eye drops once daily. He presents to the pharmacy with the prescription for eye drops labeled, "instill one drop daily in both eyes". What would be the best time to administer the eye drops?**

  A. At night
  B. In the morning
  C. In the afternoon
  D. Anytime of the day

- **A 55 year-old woman presents with recurrent symptoms of Helicobacter pylori infections. She was previously treated with the classical amoxicillin, clarithromycin, omeprazole regimen. The clinic is unable to obtain susceptibility testing for the Helicobacter pylori but the pattern of local antimicrobial resistance is well known. What would be the optimal treatment for her?**

  A. **Amoxicillin (1 g), Clarithromycin (500 mg) and Metronidazole (500 mg) plus Omeprazole (20 mg) BID for 14 days**
  B. **Amoxicillin (1 g), Clarithromycin (500 mg) and Metronidazole (500 mg) plus Omeprazole (40 mg) BID for 14 days**
  C. **Bismuth subsalicylate (2) and Tetracycline (500 mg) QID plus Metronidazole (500 mg) and Omeprazole (40 mg) BID for 14 days**
  D. **Bismuth subsalicylate (2) and Doxycycline (100 mg) QID plus Metronidazole (500 mg) TID and Omeprazole (40 mg) BID for 14 days**

- **A 20 year-old woman with a history of periodic acute migraine attacks associated with aura is having another acute attack. What would be the first choice drug?**

  A. **Codeine 30 mg four times daily**
  B. **Ibuprofen 400 mg four times daily**
  C. **Paracetamol 1000 mg four times daily**
  D. **Sumatriptan 50 mg at the onset of migraine**

- **A 25 year-old woman with a history of migraine associated with aura has taken tablet ergotamine 2 mg sublingual at first sign of migraine, then 2 mg every 30 minutes as needed. What is the maximum number of ergotamine tablets she can use in one week?**

  A. **4**
  B. **5**
  C. **6**
  D. **7**

- **A 21 year-old woman with a history of chronic migraine associated with aura is asking for medication to prevent another attack. What would be the recommended prophylaxis?**

  A. **Sumatriptan 50 mg daily**
  B. **Amitriptyline 50 mg at night**
  C. **Propranolol 20 mg twice daily**
  D. **Topiramate 25 mg twice daily**

- **A 70 year-old man with a history of osteoarthritis is admitted for knee replacement surgery. Postoperative follow up is smooth with no complications. What would be the recommended prophylaxis for venous thromboembolism?**

  A. Aspirin 81 mg PO every 24 hours
  B. Enoxaparin 40 mg SC every 24 hours
  C. Clopidogrel 75 mg PO every 24 hours
  D. Enoxaparin 1mg/kg SC every 12 hours

- **A 60-year-old man with chronic kidney disease for five years, hypertension, coronary artery disease and diabetes mellitus is due for routine follow up (see lab results).**

  Which of the following drugs is most appropriate?

  A. Sevelamer
  B. Calcium Acetate
  C. Calcium Carbonate
  D. Aluminium Carbonate

  Ans: All are contraindicated in decreased kidney function except Sevelamer (it corrects high phosphate level)

Test Result Normal Values
Sodium 140 (134-146 mmol/L)
Potassium 4 (3.5-5.1 mmol/L)
Chloride 100 (97-108 mmol/L)
Bicarbonate 22 (21 -28 mmol/L)
Calcium 2.5 (2.15-2.62 mmol/L)
Calcium ionized 1.2 (1.1-1.3 mmol/L)
Phosphate, inorganic 2.5 (0.82-1.51 mmol/L)
Magnesium 1.0 (0.7-1.2 mmol/L)
Copper 1.8 (1 .72-3.54 mmol/L)

- **An 18 year-old boy, weighing 60 kg, is diagnosed with type I diabetes. He is prescribed a basal/bolus insulin regime of 0.5 U/kg to mimic physiological levels of insulin as closely as possible. Which would be the most appropriate initial basal insulin regimen?**

  A. 30 units of insulin Aspart once daily
  B. 30 units of insulin Glargine once daily
  C. 20 units of insulin Levemir once daily
  D. 15 units of insulin Glargine once daily

  Total Basal = TDD x 0.5 glargine → 0.5 U/kg X 60 kg X 0.5 = 15 units.

- **A 73 year-old woman has a three week history of weight loss, heat intolerance, palpitations and tachycardia. On examination she is anxious and has warm extremities. She is not fit for ablative therapy and the doctor wants to try medications instead (see lab results).**

Test Result Normal Values
TSH 0.12 (0.4-0.5 µU/mL)
Thyroxine "T4 free serum" 25 (8.5-15.2 pmol/L)

  What would be the best initial choice of drug?

  A. Propranolol
  B. Methimazole
  C. Levothyroxine
  D. Ipodate sodium

  Ans: Low TSH means hyperthyroidism & Methimazole is the first choice to treat hyperthyroidism

- **At what time should the routine plasma samples for digoxin monitoring be drawn?**

  A. 2 hours post-dose
  B. 4 hours post-dose
  C. 5 hours post-dose
  D. 6 hours post-dose

- **What is the best time to do lithium levels after the dose is administered?**

  A. 4 hours
  B. 6 hours
  C. 8 hours
  D. 12 hours

- **What is the best time to do peak levels of gentamicin?**

  A. One hours post-dose
  B. Two hours post-dose
  C. Three hours post-dose
  D. Four hours post-dose

- **A 48 year-old man is on phenytoin 100 mg TID for epilepsy. His dose is adjusted to 150 mg TID. When will it be appropriate to do plasma phenytoin concentration at the new steady state?**

  A. 1 day
  B. 3 days
  C. 7 days
  D. 30 days

  Ans: Steady-state therapeutic levels are achieved at least 7 to 10 days after treatment initiation, dosage change, or addition or subtraction of another drug to the regimen.

- **What would be the most suitable time to do the peak levels of Vancomycin?**

  A. Just after the 4th dose
  B. 1 hour after the 1st dose
  C. 2 hours after the 2nd dose
  D. 30 mins after the 3rd dose
  "Need further confirmation"

- **Which of the following patient categories the gentamicin extended interval regimens (once daily dosing) is most suitable?**

  A. Pregnancy
  B. Burns patient
  C. Gram-negative infections
  D. Enterococcal endocarditis

- **A 70 year-old man long term resident in acare home have a long -term catheter in situ. His routine urine culture shows 10,000 colony forming units (CFU) per mm3. He is asymptomatic. What would be the best antibiotic recommendation?**

  A. Cephalexin
  B. Trimethoprim
  C. Ciprofloxacin
  D. Not indicated

- **An 18 year-old girl is diagnosed with seizures. She is prescribed low dose lamotrigine, the dose to be increased slowly to reach the target dose. She is asking that why she cannot take the full dose immediately. What is the reason?**

  A. SIADH is a dose related side effect
  B. Rash is a dose related side effect
  C. Leukopenia is a dose related side effect
  D. Severe aplastic anemia is a dose related side effect

- **A 79 year-old man with Alzheimer's disease has mild to moderate dementia and is on oral rivastigmine 6mg twice daily. He is not able to tolerate the medication due to nauseaand vomiting. What would be the best recommendation?**

  A. Suppositories of prochloperazine 25 mg 60 mins before each dose of rivastigmine
  B. Discontinue rivastigmine and substitute with galantamine 4 mg twice daily
  C. Metoclopramide 10 mg 30 mins before each dose of rivastigmine
  D. Change to transdermal application of rivastigmine 4.6mg/ 24-hours

- **A 69 year-old man on routine follow-up is complaining of erectile dysfunction. He has a history of angina, hypertension, and diabetes mellitus. His medications include daily Aspirin, Metoprolol, Metformin and Nitrates as required for his angina pain. Which of the following recommendation would be best?**

  A. Avanafil
  B. Bupropion
  C. Sildenafil
  D. Non-pharmacological treatment

- **A 28 year-old man who was well controlled on phenytoin is brought to the Emergency Department in a state of status epilepticus. What would be the best recommendation?**

  A. Oral clonazepam and phenytoin
  B. Intravenous lorazepam and stop phenytoin
  C. Rectal diazepam and intravenous lorazepam
  D. Increase dose of phenytoin and give intravenously

  Ans: Abruptly stopping phenytoin can lead to status epilepticus. An interaction b/w phenytoin & clonazepam occurred in an epileptic pts. The addition of CZP brought about a significant decrease of PHT plasma levels in spite of increases in the PHT dose.

- **An 89 year-old man with benign prostatic hypertrophy (BPH) has been on α-blocker for eight months. On his routine follow up he is complaining of lower urinary tract symptoms of difficulty voiding. The doctor has decided to start him on a Phosphodiesterase-5 inhibitor in addition to the α-blocker. Which of the following combination is most appropriate?**

  A. Tadalafil 4 hours after Tamsulosin
  B. Sildenafil 4 hours after Tamsulosin
  C. Tadalafil at the same time as the Tamsulosin
  D. Sildenafil at the same time as the Tamsulosin

- **A 28 year-old woman with a history of seizures that well controlled on valproic acid is asking for advice regarding her medications. She planning to start a family and is now taking folic acid. She wants to optimize the medications before her pregnancy. What would be the best recommendation?**

  A. Introduce phenytoin to valproic acid
  B. Discontinue valproic acid immediately
  C. Continue on valproic acid since she is well controlled
  D. Introduce well controlled slowly and titrate the dose of valproic acid to discontinue before pregnancy

- **A 15 year-old boy is brought to the Emergency Department by his parents with high grade fever, vomiting, and non-balancing rash. He is started immediately on cefotaxime. The cerebral spinal fluid culture reveals Neisseria meningitis. What would be the recommendation regarding prophylaxis of his family and close contacts?**

  A. His parents should receive rifampicin
  B. Antibiotic prophylaxis is not indicated
  C. Patient's close contacts should receive rifampicin
  D. Siblings under the age of 18 should receive rifampicin

- **A 79 year-old woman has urinary urgency, frequency and bed wetting at night. She has a history of osteoarthritis and hyperthyroidism. Which of the following interventions is most appropriate?**

  A. Pelvic floor exercise
  B. Darifenacin
  C. Tolterodine
  D. Oxybutynin

  Ans: Darifenacin provides comparable efficacy with improved tolerability versus oxybutynin in the treatment of patients with OAB, & producing significantly less dry mouth than oxybutynin. Use Oxybutynin with caution in patients with hyperthyroidism; may exacerbate condition.

- **A 63 year-old woman has recently been started on Levothyroxine 50 mcg/day.The dose is to be titrated based on T4/TSH and symptoms. What would be the optimal time to repeat her thyroid function test?**

  A. 1 week
  B. 2 weeks
  C. 3 weeks
  D. 4 weeks

- **A 28-year-old expectant mother who is diagnosed with Group B hemolytic Streptococcus and has received three doses of ampicillin during labor, delivery is through natural means. Routine examinations of baby shows high grade fever, jaundice, and signs of respiratory distress. What would be the optimal empiric antibiotic treatment?**

  A. Not required
  B. Ampicillin and Ceftriaxone
  C. Ampicillin and Gentamicin
  D. Ceftazidime and Gentamicin

  Ans: Ampicillin and gentamicin are usually effective against all the bacterial agents causing community-acquired sepsis in neonates as this combination has traditionally been considered to have activity against both Gram-positive and Gram-negative organisms in the neonatal period.

- **An 18-year-old boy with a history of illicit drug use is suspected to have an overdose of benzodiazepines and is experiencing ataxia, drowsiness and nystagmus. What would be the best antidote?**

  A. Activated Charcoal 50 grams
  B. Flumazenil 300 mcg intravenously
  C. Naloxone 400 mcg intramuscularly
  D. Haloperidol 10 mg intramuscularly

- **A 79 year-old woman with a history of open angle glaucoma presents to the pharmacy asking for advice on how long to wait between instilling her second eye drops. She has been prescribed two different eye drops and prefers to instill the eye drops when she goes to sleep. How long should she wait to administer the second eye drops?**
-

  A. 3 seconds
  B. 3 minutes
  C. 5 minutes
  D. 30 seconds

  Ans: when you are taking multiple drops, wait 5-10 minutes between each medication.

- **The following lab results are from a 35 year-old woman who is being treated for reflux esophagitis (see lab results)**

  Which of the following drugs would have contributed to the abnormalities in lab results?

  A. Omeprazole
  B. Cimetidine
  C. Ranitidine
  D. Gaviscon

  Ans: Long-term use of proton pump inhibitors (PPIs), including omeprazole, has resulted in reversible hypomagnesemia & vitamin B12 deficiency

Test Result Normal Values
Sodium 138 (134-146 mmol/L)
Potassium 4 (3.5-5.1 mmol/L)
Chloride 100 (97-108 mmol/L)
Bicarbonate 22 (21 -28 mmol/L)
Calcium 2.2 (2.15-2.62 mmol/L)
Calcium ionized 1.1 (1.1-1.3 mmol/L)
Phosphate, inorganic 1 (0.82-1.51 mmol/L)
Magnesium 0.4 (0.7-1.2 mmol/L)
Copper 1.8 (1 .72-3.54 mmol/L)

- **A 58 year-old man, recently diagnosed with stage-I hypertension,was started on a low dose ACEI a week ago. The aim is to titrate the dose to target dose within four weeks. On routine follow-up, he is complaining of persistent cough. What would be the best action?**

  A. Stop the ACEI
  B. Substitute the ACEI with a ARBs
  C. Continue titrating the ACEI and ignore the cough
  D. Substitute the ACEI with a calcium channel blocker

- **A 16 year-old girl with asthma recently had a routine laboratory follow up (see lab results) Which medication is most likely to have contributed to her results?**

  A. Inhaled corticosteroid
  B. Inhaled short-acting β_2 agonist
  C. Leukotriene receptor antagonist
  D. Inhaled short-acting anti-muscarinic

  Ans: Inhalation of beta-agonists induces a decrease of plasma potassium.

Test Result Normal Values
Sodium 140 (134-146 mmol/L)
Potassium 3.0 (3.5-5.1 mmol/L)
Chloride 98 (97-108 mmol/L)
Bicarbonate 22 (21 -28 mmol/L)
Calcium 2.2 (2.15-2.62 mmol/L)
Calcium ionized 1.2 (1.1-1.3 mmol/L)
Phosphate, inorganic 1.0 (0.82-1.51 mmol/L)
Magnesium 0.9 (0.7-1.2 mmol/L)
Copper 1.8 (1 .72-3.54 mmol/L)

- **Which one of the following drugs is considered first line treatment for Alzheimer's disease?**

  A. Donepezil
  B. Amantadine
  C. Pramipexole
  D. Trihexyphenidyl

- **A 70-year-old woman is taking multiple drugs According to Beers criteria, which one of the following drugs is potentially inappropriate since it might be associated with increased cognitive decline?**

  A. Aspirin
  B. Warfarin
  C. Enalapril
  D. Amitriptyline

- **A 55-year-old man is prescribed simvastatin for hyperlipidemia. He is already taking verapamil for hypertension. What should be the maximum dose of simvastatin to be prescribed?**

  A. 10 mg
  B. 20 mg
  C. 40 mg
  D. 80 mg

- **Which of the following is considered a high intensity statin therapy?**

  A. Rosuvastatin 20 mg once daily
  B. Atorvastatin 20 mg once daily
  C. Simvastatin 20 mg once daily
  D. Pravastatin 40 mg once daily

- **Which one of the following medications for osteoporosis will significantly reduce the risk of hip fracture?**

  A. Ibandronate
  B. Risedronate
  C. Raloxifene
  D. Clacitonin

  Ans: Risedronate was more effective than either calcitonin or alendronate in reducing the risk of nonvertebral fractures within 12 months of treatment. Raloxifiene use has not been associated with reduction in hip or nonvertebral fractures.

- **Which one of the following medications is known to induce pulmonary toxicity?**

  A. Amiodarone
  B. Metoprolol
  C. Carbamazepine
  D. Glibeniclamide

- **Which one of the following medications is known to be a powerful enzyme inducer?**

  A. Warfarin
  B. Rifampicin
  C. Itraconazole
  D. Metronidazole

- **Which of the following is an important counseling point for patients starting on warfarin?**

  A. Avoid green leafy vegetables
  B. Keep intake of green leafy vegetables
  C. Green leafy vegetables should be taken at least 4 hours after warfarin
  D. Green leafy vegetables should be taken at least 2 hours after warfarin

- **What is the recommendation for administering live vaccine and an antibody containing product?**

  A. Separate the two administrations by two weeks
  B. Administer both at the same visit but different sites
  C. Separate the two administrations by one month and administer at different site
  D. Administer the live vaccine first then the antibody containing product one week after

- **What is the study design called when subjects act as both the control and the active arm?**

  A. Cohort
  B. Cross-over
  C. Case series
  D. Cross-sectional

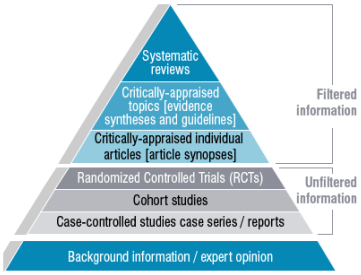
- **In clinical trials, what is the acceptable power of study?**

  A. 50
  B. 65
  C. 75
  D. 85

  Ans: The ideal power for any study is considered to be 80% (or more).

- **What is considered the lowest level of evidence when reviewing published medical literature?**

  A. Case series
  B. Case reports
  C. Clinical trials
  D. Expert opinion



- **A patient is asking the pharmacist about sharing the insulin pen with his brother to save some money. What should be the most appropriate response?**

  A. Insulin pens can be shared among siblings
  B. Insulin pens can be shared if the needle is changed
  C. Insulin pens should not be shared even if the needle is changed
  D. Insulin pens can be shared if 0.5 ml is removed between injections

- **What is the recommendation regarding air bubble in the syringe for a patient starting on enoxaparin subcutaneous injection?**

  A. Inject the dose with the air bubble
  B. Inject the air bubble if the volume is small
  C. Remove the air bubble to avoid wastage of the dose
  D. Remove the air bubble and adjust volume before injection

- **Which one of the following is a side effect to chronic use of corticosteroids?**

  A. Hypotension
  B. Hyperthyroidism
  C. Hyperparathyroidism
  D. Sodium and water retention

- **A 55-year-old man with myocardial infarction presents to the clinic with dyspnea interrupting his daily activity. Which of the following medications can cause it?**

  A. Aspirin
  B. Enalapril
  C. Ticagrelor
  D. Carvedilol

- **The pharmacy receives a prescription for labetalol 800 mg twice daily for three days. The available strength of labetalol in the pharmacy is 200 mg. How many tablets should the pharmacy dispense for the total duration?**

  A. 8
  B. 12
  C. 16
  D. 24

  Ans: 800/200 =4 mg X 2 times X 3 days = 24 tablets

- **What is the role of ascorbic acid when added to extemporaneously prepared formulations?**

  A. Solvent
  B. Preservative
  C. Coloring agent
  D. Flavoring agent

- **What is the effect of smoking on serum olanzapine levels?**

  A. Has no effect
  B. Decrease in serum olanzapine levels
  C. Increase in serum olanzapine levels
  D. Decrease in serum olanzapine levels initially then increase in it

- **A 75-year-old woman comes to the pharmacy with a new prescription for zolpidem. What is the maximum dose she can receive?**

  A. 2.5 mg
  B. 5 mg
  C. 10 mg
  D. 15 mg

  Ans: Max dose for Adults—5 mg for women and 5 or 10 mg for men once a day at bedtime.

- **What is the recommended hemoglobin target when treating anemia due to chronic kidney disease with epoetin Alfa?**

  A. 11 g/dL
  B. 13 g/dL
  C. 14 g/dL
  D. 16 g/dL

  Ans: the use of a target hemoglobin level of 11.0 to 12.0 g /dL rather than a level of 11.0 to 13.0 g/dL is recommended to correct anemia in patients with CKD.

- **Which one of the following parameters should be monitored regularly when starting a patient on clozapine?**

  A. Hemoglobin
  B. Platelet count
  C. Red blood cell count
  D. Absolute neutrophil count

- **Which one of the following medications is considered a high alert drug?**

  A. Insulin
  B. Finasteride
  C. Ceftriaxone
  D. Ciprofloxacin

- **Which one of the following pair represents the characteristic of an ophthalmic preparation?**

  A. Sterile and isotonic
  B. Sterile and hypotonic
  C. Sterile and hypertonic
  D. Pyrogen-free and hypertonic

- **Which one of the following is a property of well-formulated suspension?**

  A. Re-suspend upon moderate shaking
  B. Require small amount of preservative
  C. Form cake at the bottom of the bottle
  D. Separate the powder from the solution easily upon shaking

- **The nurse is asking the pharmacist recommendation to reduce the inadvertent intrathecal administration of vincristine. Which one of the following is recommended?**

  A. Dispense the syringe without needle
  B. Dispense vincristine in 60 ml syringe
  C. Dispense vincristine in minibag instead of syringe
  D. Dispense the vial for the nurse to prepare at the bedside

- **Which of the following strategies can reduce chemotherapeutic medications errors?**

  A. Permit STAT orders for chemotherapy
  B. Accept verbal orders for chemotherapy
  C. Pharmacist who verify chemo order should calculate dose
  D. Perform thorough check by one pharmacist to avoid mix up

- **What is the relationship between childhood vaccines and autism?**

  A. MMR vaccine causes autism
  B. Any vaccine can cause autism
  C. Hepatitis B vaccine causes autism
  D. None of the vaccines causes autism

- **What is the suitable dosage form for infants?**

  A. Oral syrup
  B. Capsule
  C. Tablet
  D. Caplet

- **Which medication can cause orthostatic hypotension?**

  A. Prazosin
  B. Donepezil
  C. Rivastigmine
  D. Spironolactone

- **What is the half-life of drug A if its elimination rate constant is 0.02 per hour?**

  A. 20
  B. 28
  C. 35
  D. 48

  Ans: t1/2 = 0.693 ÷ ke = 0.693 ÷ 0.02 = 34.65 hr.

- **What would be the expected change in the clearance of medications in acute renal failure?**

  A. Clearance of drugs eliminated mainly by the kidney increases
  B. Clearance of drugs eliminated mainly by the kidney decreases
  C. Clearance is a constant parameter and is affected by the drugdose
  D. Clearance is a constant parameter and is affected by the drug concentration

- **A patient is receiving intravenous 0.45% normal saline at rate of 75 mL/hour. What would be the amount of sodium chloride (in grams) present in one liter of this solution?**

  A. 0.45
  B. 4.5
  C. 45
  D. 90

  Ans: 0.45% normal saline = 0.45 g NaCl in 100 ml of solution, so in 1000 ml = 4.5 g

- **The pharmacist received a prescription to extemporaneously prepare moxifloxacin oral suspension from the 400 mg tablet in a concentration of 20mg/mL with total volume of 60 mL. How many tablets of moxifloxacin 400 mg will be required?**

  A. 2
  B. 3
  C. 4
  D. 6

  Ans: 20 mg in 1 ml
  So, 400 mg in x (ml)
  x= 20 ml
  1 tab (400 mg) need 20 ml,
  x tab (400 mg) need 60 ml
  x= 3 tablets

- **In a hemodynamically stable patient, when it is recommended to draw gentamicin trough level?**

  A. At steady state before the fourth dose
  B. At steady state after the first dose
  C. At steady state after the sixth dose
  D. At steady state after the second dose

- **Why is medication formulated in XL formulation?**

  A. To easily crush tablet
  B. To mask the bitter taste
  C. To prevent medication error
  D. To release the active ingredient slowly

- **Which one of the following is considered a dangerous abbreviation?**

  A. Cap for capsule
  B. Q6hr for every six hours
  C. IVP for intravenous push
  D. IU for international unit

- **Which of the following pairs is considered as acceptable patient identifiers?**

  A. Bed and birth-date
  B. First name and birth-date
  C. Gender and medical record number
  D. Medical record number and full name

- **What dose high volume of distribution indicate?**

  A. Drug concentrates in the blood
  B. Drug accumulates in the tissues
  C. Drug crosses blood brain barrier freely
  D. Drug distributes equally between the blood and the tissues

- **The nurse is asking the pharmacist about recommendations for administering inactivated and live vaccine. What should be the appropriate recommendation?**

  A. Both vaccines can be administered simultaneously or at any interval
  B. Administer the live vaccine first then the inactivated vaccine one week after
  C. Administer the inactivated vaccine first then the live vaccine one week after
  D. Separate between the two vaccines by one month and administer at different site

- **Avoidance of consuming tyramine-containing food is recommended with which of the following medications?**

  A. Warfarin
  B. Linezolid
  C. Prednisone
  D. Cyclosporine

- **What information should be provided to a patient on fentanyl transdermal patches?**

  A. Avoid increase in body core temperature
  B. Rotate the site of application to avoid tolerance
  C. Store patches in the refrigerator to decrease stinging sensation
  D. Apply heating pads on the transdermal patch to improve absorption

- **When dosing trimethoprim/sulfamethoxazole combination, the dosage recommendation is based on which component?**

  A. Either one
  B. Trimethoprim
  C. Sulfamethoxazole
  D. Dose is fixed at 5 mg/kg/day in divided doses

- **A physician would like to replace patient's valproic acid with immediate release lamotrigine. What is the recommended maximum initial dose?**

  A. 200 mg
  B. 300 mg
  C. 400 mg
  D. 500 mg

- **Which of the following strategy can be recommended to reduce metformin associated gastrointestinal side effects?**

  A. Administer 2 hours after meals
  B. Administer in divided doses with meals
  C. Administer with H2 receptor antagonist
  D. Administer before meals on empty stomach

- **Which of the following is an appropriate instruction for oral suspension?**

  A. For external use
  B. Shake well before use
  C. Only administer if clear solution
  D. Shake then wait for suspension to separate then administer

- **Which route of administration result in faster absorption?**

  A. Oral
  B. Rectal
  C. Topical
  D. Subcutaneous

- **Which dosage form is appropriate when maximum moisturization is required?**

  A. Gel
  B. Cream
  C. Lotion
  D. Ointment

- **Which of the following indications appropriate for misoprostol?**

  A. Misoprostol is ineffective for prevention or treatment
  B. Misoprostol is effective for both prevention and treatment
  C. Misoprostol is effective for preventing NSAIDs-induced ulcer
  D. Misoprostol is effective for treatment NSAIDs-induced ulcer

- **Which one of the following is considered first line therapy for the management of partial seizures?**

  A. Carbamazepine
  B. Phenobarbital
  C. Gabapentin
  D. Primidone

- **The physician is asking pharmacist about the effects of low albumin and acute renal failure on phenytoin serum concentration. The patient is receiving phenytoin 300 mg once daily. What should be the most appropriate suggestion?**

  A. In hypoalbuminemia and acute renal failure obtain free phenytoin serum concentration
  B. In hypoalbuminemia and acute renal failure obtain peak phenytoin serum concentration
  C. In hypoalbuminemia and acute renal failure obtain total phenytoin serum concentration
  D. In hypoalbuminemia and acute renal failure obtain trough phenytoin serum concentration

- **Which of the following medications require observing the patient for six hours with hourly heart rate monitoring after the first dose?**

  A. Verapamil
  B. Bisoprolol
  C. Amlodipine
  D. Fingolimod

  Fingolimod is an immunomodulation medication used to treat multiple seclerosis (MS)

- **What is the monitoring parameter for warfarin therapy?**

  A. CT
  B. INR
  C. aPTT
  D. PT:aPTT Ratio

- **A 29 year-old pregnant woman been recently diagnosed with open angle glaucoma. What would be the treatment of choice?**

  A. Topical timolol 0.1 gel once daily
  B. Oral acetazolamide 250 mg once daily
  C. Topical latanoprost 50 mcg/ml
  D. Topical bimatoprost 300 mcg/ml

- **A 27 year-old pregnant woman been recently diagnosed with iron deficiency anemia. Her hemoglobin is less than 11 g/dL. What would be the best recommendation?**

  A. Ferrous sulphate tablets with a cup of coffee or tea
  B. Ferrous sulphate tablets on an empty stomach
  C. Ferrous sulphate tablets with antacids
  D. Ferrous sulphate slow release tablets

- **A patient is on warfarin for mechanical mitral valve replacement. What should be the INR goal range?**

  A. 2.0-2.5
  B. 2.0-3.0
  C. 2.5-3.5
  D. 3.5-4.0

- **Which one of the following is known side effect of unfractionated heparin?**

  A. Hypokalemia
  B. Hyperkalemia
  C. Hypocalcemia
  D. Hypercalcemia

  Ans: Unfractionated heparin cause Hyperkalemia and hyponatremia.

- **What is the pharmacological category for insulin lispro?**

  A. Long-acting insulin
  B. Rapid-acting insulin
  C. Short-acting insulin
  D. Intermediate-acting insulin

- **What is the antidote of acetaminophen?**

  A. Ethanol
  B. Naloxone
  C. Methylene Blue
  D. N-Acetylcysteine

- **Which of the following signs correlate with phenytoin level of 200 micromol/L?**

  A. Coma
  B. Ataxia
  C. Nystagmus
  D. Decreased mental status

  Ans: Phenytoin toxicity progress from occasional mild nystagmus at 10-20 mcg/mL (the therapeutic range) to coma and seizures at levels above 50 mcg/mL.

- **A 70-year-old woman is diagnosed with sustained ventricular tachycardia. The resident doctor wants to initiate one of the ClassIll potassium channel blockers. She has a history of Torsades de Pointes arrhythmia and has renal impairment. Which of the following medications is best to initiate?**

  A. Amiodarone
  B. Dofetilide
  C. Ibutilide
  D. Sotalol

  "Need further confirmation"

- **A 28-year-old woman has been taking fluoxetine for depression and now has worsening depressive episodes. The resident doctor on the floor has been asked by consultant to stop fluoxetine and initiate phenelzine. How long should the washout period be before starting phenelzine?**

  A. 2 weeks
  B. 3 weeks
  C. 4 weeks
  D. 5 weeks

  Ans: As fluoxetine has a longer half-life than the other SSRIs, a washout period of five to six weeks is recommended before initiating phenelzine or moclobemide

1st agent ▾ / 2nd agent ▸	MAOI (phenelzine or isocarboxazid or tranylcypromine)	Moclobemide
Citalopram Escitalopram Fluvoxamine	Discontinue SSRI gradually and stop – start MAOI 7 (phenelzine or isocarboxaxid) to 14 (tranylcypromine) days later [2,3,4,5,6,7,8].	Discontinue SSRI gradually and stop – start moclobemide 7 days later [2,3,4,6].
Sertraline	Discontinue sertraline gradually and stop – start MAOI 7 to 14 days later [2,3,7,8,9,10].	Discontinue sertraline gradually and stop – start moclobemide 7 to 14 days later [2,3,9]. See note (a).
Paroxetine	Discontinue paroxetine gradually and stop – start MAOI 7 to 14 days later [2,7,8,10,11].	Discontinue paroxetine gradually and stop – start moclobemide 7 days later [2,11].
Fluoxetine [§]	Stop fluoxetine – start MAOI 5 to 6 weeks later [2,7,8,10,12].	Stop fluoxetine – start moclobemide 5 to 6 weeks later [2,3]. See note (a).
TCA	Discontinue TCA gradually and stop – start MAOI 7 to 21 days later, depending on TCA being taken [2,3,8,10,13]. See note (b).	Discontinue TCA gradually and stop – start moclobemide 7 days later [2].
Venlafaxine	Discontinue venlafaxine gradually and stop – start MAOI at least 7 days later [2,14].	Discontinue venlafaxine gradually and stop – start moclobemide at least 7 days later [2,14].
Duloxetine	Discontinue duloxetine gradually and stop – start MAOI at least 5 days later [3,15].	Discontinue duloxetine gradually and stop – start moclobemide at least 5 days later [3,15].
Mirtazapine	Discontinue mirtazapine gradually and stop – start MAOI 14 days later [2,18].	Discontinue mirtazapine gradually and stop – start moclobemide 7 days later [2].
Reboxetine	Discontinue reboxetine gradually and stop – start MAOI at least 7 days later [2].	Discontinue reboxetine gradually and stop – start moclobemide at least 7 days later [2].
MAOI See note (c)	Discontinue the first MAOI gradually and stop – start the second MAOI 14 days later [2,3,10].	Discontinue MAOI gradually and stop – start moclobemide 14 days later [2,10,19].
Moclobemide	Discontinue moclobemide gradually and stop – start MAOI 24 hours later [2,3].	

- **A 58-year-old woman presents to the Emergency Department with severe right flank pain, nausea and vomiting. She had urinary frequency and dysuria for the last three days. Her past medical history includes glucose-6-phosphate dehydrogenase deficiency. What would be the best treatment option?**

  A. Nitrofurantoin for 5-7 days
  B. Cephalexin for 5-7 days
  C. Ciprofloxacin for 5-7 days
  D. Co-trimoxazole for 5-7 days

  Ans: FQs (Cipro), sulfa drugs (co-trimazole) & Nitrofurantoin are not recommended in G6PD deficiency pts.

- **A 68-year-old woman with a history of type-2 diabetes and dyslipidemia is on atenolol and lisinopril. The doctor has started simvastatin as her estimated 10-year ASCVD risk is 7.5%. What would be the recommended dose for simvastatin?**

  A. 10 mg
  B. 20 mg
  C. 40 mg
  D. 80 mg

- **A 60-year-old woman has been recently diagnosed with stage II hypertension. Which of the following medications would be suitable for her?**

  A. Losartan/hydrochlorothiazide
  B. Atenolol/nifedipine
  C. Valsartan/furosemide
  D. Amlodipine/triamterene

- **A 40-year-old man is prescribed 20 mg methylprednisolone intravenously four times a day on the ward. The medical team would like to discharge him on oral prednisolone tablets. What should be the oral prednisolone dose?**

  A. 20 mg
  B. 40 mg
  C. 80 mg
  D. 100 mg

  Ans: Daily dose of methylprednisolone = 20 X 4= 80 mg
  4 mg of methylprednisolone equivalent to 5 mg of prednisolone
  So, 80 mg ÷ (4/5) = 100 mg prednisolone

- **A 28-year-old woman with seizure is planning to start a family. She is taking folic acid 400 mcg per day. She is asking about safe epilepsy medications during pregnancy. Which of the following would be the best medication?**

  A. Carbamazepine
  B. Valproic acid
  C. Lamotrigine
  D. Phenytoin

- **Which of the following is an irreversible side effect of an aminoglycoside?**

  A. Stomatitis
  B. Ototoxicity
  C. Nephrotoxicity
  D. Pseudomembranous colitis

- **A 75-year-old man with NYHA-IV heart failure has been started on furosemide 120 mg intravenous infusion to improve pulmonary edema. What would be the recommended duration for furosemide infusion?**

  A. 10 minutes
  B. 20 minutes
  C. 30 minutes
  D. 40 minutes

- **A 21 year-old woman is worried about her weight and is inquiring about medication to reduce it. Her height is 165 cm and her weight is 69 kg. What is her Body Mass Index?**

  A. 10
  B. 20
  C. 25
  D. 27

  Ans: BMI = Wt (kg) / Ht (m^2) = 69 / (1.65^2) = 25.3

- **The physician is asking the pharmacist about when to discontinue clopidogrel before the open heart surgery. What should be the pharmacist suggestion?**

  A. Discontinue clopidogrel 3 days before surgery
  B. Discontinue clopidogrel 5 days before surgery
  C. Discontinue clopidogrel 2 weeks before surgery
  D. Risk of bleeding is minimal continue clopidogrel

- **What is the appropriate treatment of poisoning by organophosphate nerve agents?**

  A. Pralidoxime
  B. Hemodialysis
  C. Gastric lavage
  D. Activated Charcoal

- **Which medication requires negative pregnancy test before dispensing to woman of child bearing age?**

  A. Labetalol
  B. Prednisone
  C. Ceftriaxone
  D. Isotretinoin

- **Which of the following medications can be teratogenic if a pregnant women handles crushes or breaks the tablet?**

  A. Bosentan
  B. Alfuzosin
  C. Topiramate
  D. Didanosine

- **A 75 year-old obese man has been recently diagnosed with osteoarthritis of the knee. He has tried non-pharmacological measures such as weight loss and various aids to improve symptoms, but he still has pain in the knee during walking. What would be the best initial treatment?**

  A. Topical NSAIDs
  B. Topical glucosamine
  C. Oral COX-2 inhibitors
  D. Oral non-selective NSAIDs

- **A 21 year-old man with a history of illicit drug use is suspected to have overdose of an opioid and is experiencing severe toxicity with respiratory depression and pin-point pupils. What would be the best antidote?**

  A. Activated Charcoal 50 grams
  B. Diazepam 10 mg intramuscularly
  C. Flumazenil 300 mcg intravenously
  D. Naloxone 400 mcg intramuscularly

- **A nurse on the ward is being asked by the doctor to administer normal saline 250 mL over two hours using an infusion set running at 5 drops/mL. What will be the infusion rate in drops/minute?**

  A. 2
  B. 10
  C. 21
  D. 100

  In 1 ml — 5 drops
  In 250 ml — x drops
  = 250 x 5 = 1250 drops
  Since: 2hrs = 120 mins → 1250/120 = 10.4 drops/minute

- **A pharmacy intern is asked to prepare a solution containing 8.4 g of drug, from available solution labeled as 20% w/v. What would be the volume he must take from 20% w/v solution?**

  A. 4.2 ml
  B. 8.4 ml
  C. 42 ml
  D. 84 ml

  Ans: % w/v $= \frac{m(g)}{V\ (ml)} \rightarrow V\ (ml) = \frac{8.4\ g}{20\%} = 42\ ml$

A 55-year-old man with an African descent is diagnosed with hypertension with a BP of 140/80. Which of the following is the most appropriate first line treatment?

A. Ramipril
B. Amlodipine
C. Carvedilol
D. Candesartan

- **A 65-year-old man with NYHA class-IV heart failure has been started on digoxin to improve his symptoms. Which of the following electrolyte imbalance will predispose him to digoxin toxicity?**

A. Hyperkalemia
B. Hypercalcemia
C. Hypernatremia
D. Hypermagnesemia

Ans: Hypercalcemia & hypokalemia will lead to digoxin toxicity, & digoxin toxicity will lead to Hypercalcemia & Hyperkalemia.

- **A patient is receiving intravenous fluid at a rate of 75 mL/hour. How much time will it take to infuse 1.5 liters?**

A. 5 hours
B. 10 hours
C. 15 hours
D. 20 hours

Ans: 1.5 L = 1500 ml → if 75 ml take 1 hour, so, 1500 ml will take 20 hrs.

- **A patient is receiving 5 % dextrose saline at a rate of 100 mL/hour. How many liters will he receive in 20 hours?**

A. 2 L
B. 3 L
C. 4 L
D. 6 L

Ans: if 100 ml take 1 hour, so, in 20 hrs. he will receive 2000 ml = 2L

- **A 55-year-old man with bipolar disorder is stable on lithium for the last 12 months. Which of the following tests should be ordered on routine follow up?**

A. Renal profile
B. Liver function test
C. Complete blood count
D. Thyroid function tests

Ans: Lithium inhibits thyroid function at various points in the thyroid axis.

- **A 55-year-old man with a BMI of 37 is diagnosed with Type II diabetes three months ago. He failed to adhere to prescribed diet and exercise regimen. Which of the following medications would be best indicated?**

  A. Metfromin
  B. Gliclazide
  C. Tolbutamide
  D. Glibenclamide

  Ans: Sulfonylureas may cause weight gain.

- **An eight month-old boy with recurrent otitis media has been started on high dose amoxicillin (90 mg/kg) for seven days. There is no fever and no evidence of hearing loss. He is due his 3rd dose of pneumococcal vaccination and the influenza vaccination. The nurse is asking about due vaccination. What would be the best action?**

  A. Cancel pneumococcal and influenza vaccination
  B. Proceed with pneumococcal and influenza vaccination
  C. Postpone pneumococcal and influenza vaccination for one year
  D. Delay pneumococcal and influenza vaccination till antibiotic use

- **How many grams of dextrose is present in 100 ml of 10% dextrose solution?**

  A. 1 g
  B. 10 g
  C. 100 g
  D. 1000 g

  Ans: 10% dextrose solution = 10 g of dextrose in 100 ml of solution

- **A patient is started on dopamine 5 mcg/kg/minute. The patient weight is 60 kg. How many milligram of dopamine will be administered in 24 hours?**

  A. 43 mg
  B. 180 mg
  C. 432 mg
  D. 1800 mg

  Ans: 5mcg X 60 kg X 60 min X 24 hours = 432000 mcg/1000 = 432 mg

- **What does "scored tablet in quarter" indicate?**

  A. Tablet can be crushed
  B. Tablet can be broken in half
  C. Tablet is immediate release formulation
  D. Tablet can be broken in half or quarters

- **A 10-year-old boy is prescribed a drug at a dose of 10 mg/kg every 8 hours. His weight is 30 kg. What will be the total daily dose he receives?**

  A. 30 mg
  B. 100 mg
  C. 300 mg
  D. 900 mg

  Ans: 10 mg X 30 kg X 3 times daily =900 mg

- **A 10-year-old <u>obese</u> girl with newly diagnosed depressive illness is being advised to start antidepressant treatment. Which of the following is best to initiate?**

  A. Bupropion
  B. Paroxetine
  C. Mirtazapine
  D. Amitriptyline

- **A 25-year-old man presents to the Emergency Room after ingesting 30 tablets of Alprazolam. What should be the appropriate antidote?**

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

- **A patient on warfarin presents with nose bleeding since yesterday. His INR is 10. What should be the pharmacist advice?**

  A. Administer charcoal
  B. Perform hemodialysis
  C. Hold warfarin and administer vitamin K
  D. Continue same dose and monitor INR closely

- **A 65-year-old man diagnosed with Type II diabetes five years ago and is on an oral biguanide. His routine follows up and laboratory work up is scheduled. Which of the following additional tests is recommended?**

  A. Vitamin C
  B. Vitamin D
  C. Vitamin B12
  D. Electrolytes

  Ans: metformin can commonly reduce vitamin B12 levels

- **A 48-year-old man with myocardial infarction is started on an ACEI. He is started on a low dose and the aim is to titrate to the target dose within four weeks. On routine follow up of labs one week from starting the drug, his serum creatinine is increased by 20% from the baseline. What would be the most appropriate action?**

  A. Stop the ACEI
  B. Continue titrating the ACEI
  C. Keep the current dose of ACEI
  D. Substitute the ACEI with an ARBs

  Ans: Withdrawal of an ACEI should occur only when the rise in creatinine exceeds 30% above baseline within the first 2 months of ACEI initiation, or hyperkalemia develops, ie, serum potassium level of 5.6 mmol/L or greater.

- **A 52-year-old man has been admitted in the Intensive Care Unit (ICU) for seven days and is suspected of having endocarditis with unstable hemodynamics. He is started on vancomycin 2000 mg IV as a loading dose followed by 1500 mg every 12 hours. The concentration of vancomycin is 5 mg/mL in 0.9% normal saline. What should be the maximum rate of infusion for loading dose of vancomycin?**

  A. 1 mL/min
  B. 2 mL/min
  C. 3 mL/min
  D. 4 mL/min

  Ans: No > 10 mg/mL of vancomycin should be administered, so 10 mg/ml ÷ 5 mg/mL = 2 mL/min

- **A 65-year-old man with a history of chronic NSAIDs use presents with melena. The endoscopy shows erosive esophagitis. Which of the following drugs will be the most appropriate treatment?**

  A. Ranitidine
  B. Sucralfate
  C. Lansoprazole
  D. Metoclopramide

- **A 45 year-old man with bipolar disorder has been stable on Lithium for 12 months. He is due for routine laboratory work up. Which of the following electrolyte imbalances will predispose him to lithium toxicity?**

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

- **A 60 year-old man with a history of heart failure presents with an acute attack of gout in the left toe with excruciating pain. He rates his pain in his toe as 8/10. Which is the best treatment option?**

  A. Aspirin 300 mg daily
  B. Diclofenac 75 mg daily
  C. Allopurinol 300 mg daily
  D. Colchicine 600 mcg daily

- **A 60-year-old man with a history of heart failure presents with an acute attack of gout in the left toe with excruciating pain. He rates his pain in his toe as 8/10. Which of the following medications could have contributed to his acute gout?**

  A. Losartan 20 mg daily
  B. Furosemide 40 mg daily
  C. Hydrochlorothiazide 25 mg daily
  D. Carvedilol 25 mg twice daily

- **Which of the following is an important counseling point for woman starting on Fingolimod?**

  A. Use effective contraception to avoid pregnancy during and 2 months after discontinuing treatment
  B. Pregnancy should be avoided for six months after discontinuing treatment
  C. Use effective contraception to avoid pregnancy during treatment
  D. Fingolimod is safe during pregnancy

- **A 60 year-old man with a history of angina pectoris is complaining of shoulder pain. Which of the following analgesics can inversely affect his disease outcome?**

  A. Acetaminophen
  B. Celecoxib
  C. Morphine
  D. Codiene

- **Which one of the calcium channel blockers is non-dihydropyridine drug?**

  A. Nicardipine
  B. Amlodipine
  C. Nifedipine
  D. Diltiazem

- **What is the content of a monophasic contraceptive pills?**

  A. Constant dose of estrogen
  B. Constant dose of progesterone
  C. Constant dose of estrogen and progesterone
  D. Variable doses of estrogen and progesterone

- **Which of the following vaccines is contraindicated in pregnancy?**

  A. Hepatitis b vaccine
  B. Influenza virus vaccine
  C. Varicella zoster vaccine
  D. Meningococcal polysaccharide vaccine

- **A women on mycophenolate is planning for pregnancy. She is asking for pharmacist advice. What should be the most appropriate advice?**

  A. Mycophenolate should be continued during pregnancy
  B. Mycophenolate should be continued for the first trimester then discontinued
  C. Mycophenolate should be discontinued at least 6 week prior to trying to conceive.
  D. Mycophenolate should be discontinued at least 12 week prior to trying to conceive.

- **Which cardiac enzymes have the highest specificity and sensitivity to aid the diagnosis of an acute coronary syndrome?**

  A. BNP and NT-proBNP
  B. Troponins T and I
  C. C-creative protein (CRP)
  D. Creatinine Kinase (CK-MB)

- **A 54-year-old man with a history of cirrhosis and alcoholic liver disease presents with hepatic encephalopathy. What is the best treatment option?**

  A. Senna
  B. Lactulose
  C. Rifaximin
  D. Ceftriaxone

- **Which one of the following side effects is known to bisphosphonates?**

  A. Headache
  B. Muscle pain
  C. Hypotension
  D. Osteonecrosis of the jaw

- **When dosing levodopa/carbidopa, on which component should the dose be based on?**

  A. Dose should be based on levodopa
  B. Dose should be based on carbidopa
  C. Dose should be based on both components
  D. Either one since the ratio of the combination is 1 : 1

  "Need further confirmation"

- **Which of the following antineoplastic medications can be given intrathecal?**

  A. Vindesine
  B. Vincristine
  C. Vinblastine
  D. Cystosine Arabinose

- **Which of the following antineoplastic medications is known to cause bone marrow suppression?**

  A. Bleomycin
  B. Vincristine
  C. Daunorubicin
  D. L-asparaginase

  Ans: Daunorubicin may cause severe bone marrow suppression when used at therapeutic doses; may lead to infection or hemorrhage.

- **A 65-year-old man with acute decompensated heart failure has been started on dobutamine 5 mcg/kg/minute. The infusion bag of dobutamine is 150 mg in 100 ml of 0.9% sodium chloride. He has normal renal function and his weight is 70 kg. What would be the rate of infusion of dobutamine?**

  A. 0.25 mL/hour
  B. 1.3mL/hour
  C. 14 mL/hour
  D. 26mL/hour

  Ans: Infusion rate (ml/hr) = $\frac{Dose.Wt(kg).60\ min}{mg/ml} = \frac{5\ mcg\ X\ 70\ kg\ X\ 60\ min}{150\ mg/100\ ml}$ *= 14000 µl/hr = 14 ml/hr*

- **A 62 year-old man has been admitted in the surgical ward for 14 days and is suspected to have methicillin resistant S. aureus (MRSA) infection in his wound. He is started on vancomycin 1500 mg IV as a loading dose followed by 1000 mg every 12 hours. He has normal renal function and his weight is 70 kg. What is the recommended time to take vancomycin serum levels?**

  A. After the 1st dose
  B. After the 2nd dose
  C. After the 3rd dose
  D. After the 4th dose