

Department of Pharmacy

Licensing Examination

Name _____ I.D. _____

Part I

1. A 62-year-old woman with a history of hypertension and hyperlipidemia presents to the hospital with diffuse muscle pain, weakness, and dark urine. She has no history of autoimmune or renal disease. Over the past month, she has had symptoms of **cold intolerance, weight gain, and constipation**. Her medications include hydrochlorothiazide, simvastatin, and gemfibrozil. Urine dipstick reveals 3+ blood; however, there are no red blood cells on microscopic analysis. Some of the other laboratory values are shown below.

Creatinine 2.3 mg/dL Creatine kinase 34,000 U/L TSH 8.0 μ U/mL

Which of the following is the most likely cause of her presentation?

- A) Hashimoto thyroiditis (C) Polymyositis
(B) Pyelonephritis (D) **Medication effect**

Note: Hashimoto's Thyroiditis symptoms are constipation, hair loss, excessive sleep.

2. A 28-year-old woman **frantically presents to the Emergency Department in the middle of the night with chest discomfort that awoke her from sleep**. She has experienced similar episodes a few times before, always at night, but never as bad as this. She reports a **history of migraines** but denies any other medical history, including heart disease. Her medications include NSAIDs as needed and OCPs. She smokes a half pack of cigarettes a day but denies any alcohol or drug use. She admits that she gets "**stressed out**" a lot but believes that overall she lives a healthy lifestyle. Laboratory values show normal CK and troponin. An ECG shows ST elevations and she is taken for coronary angiography that does not show any significant coronary occlusions.

What is the most appropriate treatment for this patient?

- (A) Alprazolam (D) NSAIDs
(B) **Diltiazem** (E) Reassurance
(C) Alteplase

3. A 53-year-old man is **hospitalized with pneumonia** and is placed on a cardiac monitor. While in the room, you notice that he is in normal sinus rhythm but has occasional wide complexes without any pattern or relationship to the cardiac cycle. They occur several times per minute. The patient states that every once in awhile he feels like his **heart skips a beat**. He has no history of heart disease or sudden death in the family, and his vitals are normal.

Which of the following is the most appropriate next step in management?

- (A) Catheter ablation of the ectopic focus
- (B) Administer metoprolol
- (C) Administer propafenone
- (D) Avoidance of caffeine and other stimulants**

Note: heart skipped means suddenly skipped a beat /heart palpitation /beating too hard and drug used for heart skips a beat is metoprolol, propranolol and atenolol but propafenone is used to treat patients who have irregular heartbeats.

4. A 56-year-old man was recently hospitalized for an acute myocardial infarction. He was treated appropriately and had no complications during his hospitalization. After discharge, he follows up regularly in your clinic. Several months after his hospitalization, he comes to clinic for a regular visit with no complaints, stating that he is tolerating his new medications well. As he begins to leave, he mentions problems during intercourse with his wife and asks if he could have a prescription for sildenafil. A further history is obtained, and he reports that he no longer has morning erections. Which of the following is most likely responsible for this complaint?

- | | |
|------------------------------|------------------|
| (A) Lisinopril | (C) Amlodipine |
| <u>(B) Metoprolol</u> | (D) Atorvastatin |

Calcium channel blocker such as Amlodipine, Diltiazem and verapamil cause erectile dysfunction,

5. A 52-year-old woman presents to the hospital with a **severe headache and nausea**. She has no history of headaches and is concerned that she is having **a stroke**. Her medical history is significant for longstanding hypertension, diabetes, and GERD. She admits that she is not always compliant with her medications, and recently ran out of them. Her blood pressure is **193/124**

mmHg, and fundoscopic examination reveals **papilledema**. The rest of her physical examination, including a neurologic examination, is normal.

What is the correct diagnosis and treatment?

- (A) Hypertensive urgency; gradual lowering of blood pressure with oral agents
- (B) Hypertensive urgency; rapid lowering of blood pressure with IV agents
- (C) Hypertensive emergency; gradual lowering of blood pressure with oral agents
- (D) Hypertensive emergency; rapid lowering of blood pressure with IV agents**

6. A 68-year-old woman presents with progressive dyspnea. She has a history of longstanding hypertension, previous myocardial infarction, and several episodes of ventricular tachycardia that required cardioversion. She is now maintained on prophylactic medication with good cardiac function and no further arrhythmias. On examination, she is afebrile with a **respiratory rate of 28 breaths per minute** and oxygen saturation of 92% on room air. Cardiac examination is normal, but she has dry rales throughout her lung fields. A CT scan of the chest shows diffuse ground-glass opacities.

Which medication is most likely responsible for the patient's symptoms?

- | | |
|----------------|------------------------------|
| (A) Digoxin | <u>(C) Amiodarone</u> |
| (B) Lisinopril | (D) Bleomycin |

7. A 69-year-old woman with a history of hypertension, diabetes, and myocardial infarction comes to the hospital with worsening shortness of breath and leg swelling. She has an S3 on examination with crackles at both lung bases and 2+ pitting edema in her lower extremities. The level of brain **natriuretic peptide** is elevated and a **chest x-ray shows vascular congestion with bilateral fluffy opacities**. Which of the following would be unlikely to contribute to the patient's current presentation?

- (A) Excessive sodium in the diet
- (B) Forgetting to take medications
- (C) Digoxin**

(D) Renal failure

8. A 58-year-old man presents to the hospital with persistent fatigue and some exertional dyspnea. He has a history of hypertension, diabetes, and atrial fibrillation. Cardioversion was attempted previously but without success. He was lost to follow-up, but reports that he takes lisinopril and metformin regularly. On examination, he is normotensive with a heart rate of 76 beats per minute with an irregularly irregular rhythm. There are no murmurs or extra heart sounds, and his lungs are clear to auscultation bilaterally. What is the most appropriate next step in management?

(A) Repeat cardioversion

(C) Warfarin

(B) Aspirin

(D) Amiodarone

9. 55-year-old man presents to the hospital with progressive dyspnea over the course of the last few weeks. He denies fever, cough, or chest pain. He has no significant medical or family history, but endorses drinking two 750-mL bottles of wine daily. He is afebrile with a blood pressure of 139/82 mmHg, heart rate of 98 beats per minute, and respiratory rate of 24 breaths per minute. The point of maximal impulse is displaced laterally, a 2/6 holosystolic murmur is heard at the apex, and an S3 is auscultated. There are crackles at the lung bases with pitting edema around the ankles.

Which of the following is the most important intervention for this patient?

(A) Low sodium diet

(C) β -blocker

(B) Cardiac glycoside

(D) Alcohol cessation

10. A 47-year-old man presents to the clinic complaining of leg swelling. He has a long history of hypertension and diabetes, with a recent change in his medications, although he cannot remember the names of the new drugs. He has no other complaints, and he denies any shortness of breath or orthopnea. His physical examination, other than bilateral edema of the lower extremities, is completely normal. Which medication is most likely responsible for the patient's complaint?

(A) Amlodipine

(C) Metformin

(B) Metoprolol

(D) Glipizide

11. A 68-year-old woman is hospitalized for an **acute exacerbation of chronic obstructive pulmonary disease (COPD)**. She responds well to treatment and is discharged. At her follow-up appointment, she states that she has been compliant with treatment but has had 2 acute exacerbations in the last 9 months. In addition to COPD, her medical history is significant for hypertension, hyperlipidemia, and atrial fibrillation. She takes hydrochlorothiazide, simvastatin, diltiazem, and **salmeterol**. She also takes **inhaled albuterol and ipratropium** as needed. She does not smoke, is up to date with the appropriate vaccinations, and is undergoing pulmonary rehabilitation. Her vitals are taken: blood pressure 132/86 mmHg, heart rate 87 beats per minute, respiratory rate 16 breaths per minute, and oxygen saturation 94% on room air. Which of the following is the most appropriate next step in management?
- (A) Add theophylline
 - (B) **Add inhaled fluticasone**
 - (C) Add oral prednisone
 - (D) Start home oxygen therapy
12. An older man with a history of COPD complains of worsening dyspnea and exercise intolerance, even after smoking cessation and an evidence-based pharmacologic regimen. The physician discusses the possibility of adding **theophylline** to the patient's chronic regimen. What potential adverse reaction should the patient be counseled about before starting this medication?
- (A) Bradycardia
 - (B) Pulmonary fibrosis
 - (C) Hypocalcemia
 - (D) **Seizure**
13. A 24-year-old woman with a history of asthma complains of worsening chest tightness and cough. She currently has an **albuterol inhaler** that she uses as needed, but says that it does not help very much. She has no other medical problems and takes no other medications. The physical examination is unremarkable. Which of the following is the most appropriate next step in management?

- (A) Add an inhaled corticosteroid
- (B) Add an inhaled anticholinergic
- (C) Education about proper use of inhalers**
- (D) Workup for a different diagnosis

14. A 52-year-old man is hospitalized for an acute COPD exacerbation and agrees to treatment with 3 days of IV methylprednisolone followed by a taper of oral prednisone over 10 days. Which of the following is this patient most likely to experience as a potential adverse effect of these medications?

- (A) Serious infections
- (B) Hyperglycemia
- (C) Osteoporosis
- (D) Adrenal suppression**

15. A 32-year-old woman with a history of moderate persistent asthma complains of “white stuff” on her tongue and a feeling of “cotton mouth.” Her asthma is well controlled without any recent exacerbations. Examination shows white plaques adherent to the tongue and buccal mucosa that are removed with scraping.

Which of the following is most likely responsible?

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|-------------------------------|-----------------|
| (A) Albuterol | (C) Salmeterol |
| <u>(B) Fluticasone</u> | (D) Montelukast |

16. A 68-year-old man presents to the hospital with nausea, vomiting, muscle weakness, and palpitations. He has a history of ischemic cardiomyopathy and takes lisinopril, carvedilol, simvastatin, and aspirin. He recently started taking spironolactone due to an increase in heart failure symptoms. There are no recent changes in his diet, and he denies any chest pain or shortness of breath. His screening chemistry panel is shown below.

Sodium 135 mEq/L

Potassium 7.0 mEq/L

Chloride 101 mEq/L

Bicarbonate 24 mEq/L

Blood urea nitrogen 18 mg/dL

Creatinine 1.2 mg/dL

Glucose 145 mg/dL

Which of the following treatments is **LEAST** beneficial in the acute setting?

- (A) Insulin intravenous
- (B) Calcium gluconate
- (C) **Sodium polystyrene sulfonate**
- (D) Furosemide intravenous

17. A 66-year-old woman presents to her physician for her annual examination. Her medical history is significant for **hypertension and osteopenia**. She is compliant with her medications and takes benazepril and a daily multivitamin with high calcium and vitamin D. She does not smoke and does weight-bearing exercises 4 times weekly. She denies any falls or previous fractures. On examination, her blood pressure is 164/94 mmHg and her heart rate is 89 beats per minute. Which medication should be added to her current regimen?

- (A) **Hydrochlorothiazide**
- (B) Furosemide
- (C) Metoprolol
- (D) Alendronate

18. A 28-year-old IV drug user presents to the hospital with shortness of breath. The murmur of tricuspid regurgitation is heard on cardiac auscultation, and a chest x-ray shows multiple opacities in both lungs. An echocardiogram confirms endocarditis, and the patient is started on empiric vancomycin and gentamicin while blood cultures are pending. Two days later, the following results are seen on her laboratory tests. GFR<15

Blood urea nitrogen 28 mg/dL

Creatinine 1.8 mg/dL (baseline 0.9 mg/dL)

Urinalysis Pigmented granular casts

Which of the following should be done next?

(A) IV fluids

(C) Stop gentamicin

(B) Temporary hemodialysis

(D) Stop vancomycin

19. A middle-aged woman is diagnosed with hypertension and counseled about starting an antihypertensive medication. The patient agrees to start hydrochlorothiazide, but wants to know about potential side effects that she might experience.

Which of the following is a potential adverse effect of this medication?

(A) Hyperkalemia

(C) Hypoglycemia

(B) Hypercholesterolemia

(D) Hypocalcemia

20. A 62-year-old man with a history of hypertension, well-controlled diabetes, and coronary artery disease presents with shortness of breath. A history is obtained, with pertinent positives including orthopnea and leg swelling. His blood pressure is 146/94 mmHg with a heart rate of 84 beats per minute. The patient has an S3 on cardiac auscultation, bilateral rales are heard along the lung bases, and there is pitting edema around the ankles. Laboratory tests are ordered, which show a creatinine of 2.4 mg/dL (baseline 1.0 mg/dL).

What is the next step in managing this patient's renal failure?

(A) IV fluids

(B) Give ketorolac to increase the GFR

(C) Systemic corticosteroids

(D) IV furosemide

21. A 41-year-old woman is placed on enalapril to treat her hypertension. She has no significant medical history and is otherwise healthy. She has her laboratory samples drawn 5 days later, which show serum potassium of 4.2 mEq/L, a BUN of 13 mg/dL, and a creatinine of 1.1 mg/dL (baseline 0.9 mg/dL). A urinalysis is normal.

What should be done next in the management of this patient?

(A) **Continue the current medication**

- (B) Discontinue enalapril and start hydrochlorothiazide
- (C) Discontinue enalapril and start losartan
- (D) Add hydrochlorothiazide

22. A 39-year-old woman presents with **epigastric pain that has radiated to her back** for the last 8 hours. She endorses **nausea and vomiting**. Her past medical history is significant for **hyperlipidemia**; however, she does not take any medications other than a multivitamin. She denies alcohol or drug use. On examination, the patient is slightly febrile at 38.4°C, with a blood pressure of 114/83 mmHg, a heart rate of 98 beats per minute, and a respiratory rate of 22 breaths per minute. The patient has decreased bowel sounds and guarding in the midepigastrium.

Which of the following results is the most specific finding in this condition?

- (A) Elevated amylase
- (B) Elevated ALT
- (C) Elevated lipase**
- (D) Positive fecal fat test

23. A 53-year-old man with a history of peptic ulcer disease and hypertension presents with hematemesis. A nasogastric tube is placed and a large amount of coffee ground material is lavage. The patient has a temperature of 37°C, blood pressure of 88/42 mmHg, heart rate of 112 beats per minute, respiratory rate of 20 breaths per minute, and oxygen saturation of 97% on room air. Physical examination reveals delayed capillary refill.

What is the best next step in management of this patient?

- (A) Immediate upper GI endoscopy
- (B) Administration of fluids**
- (C) *H. pylori* serologic testing
- (D) Intravenous (IV) proton pump inhibitor

24. A 49-year-old morbidly obese man with a 40 pack-year history of smoking presents with worsening heartburn. The patient reports that he has had heartburn for 3 years, but it has worsened over the past 3 months. Over-the-counter medications do not ameliorate his symptoms

anymore. Upper endoscopy is performed and a **hiatal hernia** is diagnosed. The patient adamantly refuses any medical or surgical intervention.

Which of the following is he at risk for developing?

- (A) Squamous cell carcinoma of the esophagus
- (B) **Adenocarcinoma of the esophagus**
- (C) Esophageal perforation
- (D) variceal esophageal bleeding

25. A 61-year-old man with a history of hypertension and congestive heart failure presents with abdominal “bloating” for the last 9 months. He also endorses significant swelling of his feet and timidly mentions that his chest is starting to “resemble that of a female.” He denies alcohol or drug use. Physical examination reveals abdominal ascites, bilateral gynecomastia, and spider angiomas on his torso.

Which of the following is likely the cause of his underlying disorder?

- (A) Drug toxicity
- (B) Malignancy
- (C) Autoimmune disorder
- (D) **Viral infection**

26. A 52-year-old woman presents with confusion that has worsened over the past week. Her partner reports that she has also noticed yellowing of the skin. Further history reveals that the patient has been taking a significant amount of over-the-counter pain medications due to diffuse joint pain. The patient drinks three glasses of wine per night and reports no illicit drug use. Physical examination is significant for tenderness to palpation in the right upper quadrant and hepatomegaly.

Laboratory results reveal the following.

Total bilirubin7.1 mg/dL
Direct bilirubin4.2 mg/dL
Aspartate aminotransferase 5,424 U/L

Alanine aminotransferase 6,934 U/L
Alkaline phosphatase 120 U/L
Prothrombin time 31 s
Partial thromboplastin time 44 s
INR1.9

What is the most likely underlying diagnosis?

(A) Drug-induced acute liver failure

(B) Acute alcoholic hepatitis

(C) Nonalcoholic fatty liver disease

(D) Chronic viral hepatitis

27. A 27-year-old medical student who recently (3 weeks ago) began a 6-month treatment of isoniazid for latent tuberculosis after a positive purified protein derivative (PPD) test presents for follow-up. He has no complaints and reports refraining entirely from alcohol use. Physical examination is unremarkable and laboratory results reveal the following:

Total bilirubin..... 0.7 mg/dL
Direct bilirubin0.3 mg/dL
Aspartate aminotransferase72 U/L
Alanine aminotransferase93 U/L
Alkaline phosphatase51 U/L

Which of the following is the next best step in management of this patient?

(A) Continue current treatment regimen

(B) Replace isoniazid with ethambutol

(C) Liver biopsy is important

(D) Discontinue current medications

28. A 58-year-old male is being treated for *Pseudomonas* nosocomial pneumonia with cefepime. His symptoms improve, but 1 week later he develops fever and diarrhea with several loose non bloody stools per day.

Given the likely diagnosis in this scenario, what is the treatment of choice?

(A) Ciprofloxacin

(C) Imipenem

(B) Clindamycin

(D) Metronidazole

29. A 24-year-old woman presents with a history of diarrhea. She reports returning 2 months ago from a church-affiliated hiking trip. Since returning, she has developed diarrhea, abdominal pain, and increased flatulence. Of note, she just finished taking one of her friend's ciprofloxacin for 7 days without any improvement.

Which of the following antibiotics should be prescribed to this patient?

(A) Ampicillin

(B) Metronidazole

(C) Ceftriaxone

(D) Doxycycline

30. An obese 32-year-old woman with a history of gastroesophageal reflux disease (GERD) presents with amenorrhea for the past year. Review of systems is unremarkable. She has 3 children and denies tobacco, alcohol, or drug use. She has a temperature of 37°C, blood pressure of 120/80 mmHg, heart rate of 75 beats per minute, respiratory rate of 16 breaths per minute, and oxygen saturation of 100% on room air. Visual field testing reveals no abnormality and her pregnancy test is negative. Laboratory studies reveal a serum prolactin level of 108 ng/mL. MRI of the pituitary gland confirms a 5.5-mm pituitary adenoma.

Which of the following is the next best step in management?

(A) Treatment with bromocriptine

(B) Estrogen replacement therapy

(C) Surgery is the only treatment modality

(D) Serial prolactin levels and close observation

31. A 53-year-old man with a history of type 2 diabetes presents with swollen legs for the last month. The patient is asymptomatic otherwise. His current medications include a multivitamin and metformin. HbA1c was 7.9% at his annual visit in the previous year. He has a temperature of 36.8°C, blood pressure of 142/78 mmHg, heart rate of 68 beats per minute, respiratory rate of 16 breaths per minute, and oxygen saturation of 98% on room air. Physical examination reveals 2+ bilateral pitting edema up to his midtibia region. Laboratory results reveal the following.

Sodium	142 mEq/L
Potassium	4.0 mEq/L
Chloride	99 mEq/L
Bicarbonate	22 mEq/L
Blood urea nitrogen.....	41 mg/dL
Creatinine	3.1 mg/dL
Blood glucose.....	152 mg/dL
24-hour urine protein.....	2.9 g/d

Which of the following should be administered to reduce the progression of this patient's underlying renal condition?

- (A) Sulfonylurea
- (B) Lisinopril**
- (C) Atorvastatin
- (D) Aspirin

32. A 54-year-old obese woman with a history of type 2 diabetes mellitus presents to the physician for her annual visit. She currently takes metformin and a multivitamin. She reports being compliant with her medication; however, she has noticed that her blood sugar levels have consistently been in the high 200s to 300s for the last month. Laboratory results reveal fasting blood glucose of 172 mg/dL and an HbA1c of 8.3%. The physician informs her that a second

agent will need to be prescribed for her diabetes. The patient requests an antidiabetic medication that will help her lose weight as well as control her blood sugars.

Which of the following medications should be added to the patient's current regimen?

(A) Glipizide

(B) Exenatide

(C) Insulin

(D) Pioglitazone

33. A 24-year-old woman presents with labored breathing and abdominal pain. She endorses polydipsia and polyuria. She has a blood pressure of 130/90 mmHg, her pulse is 120 beats per minute, and her respiratory rate is 24 breaths per minute. Laboratory results reveal the following.

Sodium 134 mEq/L

Potassium 3.9 mEq/L

Chloride 94 mEq/L

Bicarbonate 16 mEq/L

Creatinine 1.0 mg/dL

Glucose 880 mg/dL

She is treated with intravenous insulin and isotonic saline solution. Two hours later her serum glucose concentration is 410 mg/dL with ample urine output.

Which of the following is the most appropriate next step?

(A) Add glucose to the IV solution

(B) Add potassium to the IV solution

(C) Initiate treatment with intermediate-acting insulin

(D) Discontinue isotonic saline solution and begin hypotonic saline solution

34. A 65-year-old man is brought into the Emergency Department by his daughter, who reports that he is fatigued and short of breath. Several days ago he developed a fever with a productive cough, which has now progressed to dyspnea at rest. On examination, the patient's temperature is

38.6°C, his blood pressure is 74/42 mmHg, his heart rate is 96 beats per minute, his respiratory rate is 24 breaths per minute, and his oxygen saturation is 94% on room air. He is lethargic, his neck veins are flat, and his extremities are warm and moist. There is dullness to percussion and decreased breath sounds over the right lung base. Serum blood work shows an elevated lactate.

What is the correct diagnosis?

(A) Cardiogenic shock

(C) Severe sepsis

(B) Sepsis

(D) Septic shock

35. A 33-year-old woman presents with a chief complaint of abdominal pain. The pain is epigastric and is worse with meals. It is associated with nausea, a burning sensation, and bloating. She denies any weight loss, vomiting, and bloody or dark stools. She has no other medical problems and takes no medications. She denies recent NSAID use or heavy alcohol consumption. An upper endoscopy is performed, which shows several gastric ulcers and one duodenal ulcer. Biopsy confirms infection with *Helicobacter pylori*.

What is the most appropriate treatment at this time?

(A) Amoxicillin, metronidazole, and bismuth

(B) Amoxicillin, clarithromycin, and omeprazole

(C) Lansoprazole, bismuth, metronidazole, and tetracycline

(D) Symptomatic treatment with antacids

36. A 23-year-old man with a history of cystic fibrosis presents to the Emergency Department in respiratory failure. He is found to be febrile with leukocytosis and infiltrates on chest x-ray. Sputum Gram stain shows gram-negative rods, and culture grows oxidase-positive colonies that produce a sweet smell. Other significant laboratory values include a leukocyte count of 17,300/mm³ and a creatinine of 1.6 mg/dL (baseline 0.9 mg/dL).

What is the most appropriate antibiotic for this patient?

(A) Gentamicin

(C) Vancomycin

(B) Cefepime

(D) Cephalexin

37. A 32-year-old woman presents to her physician because of vaginal discharge. She is sexually active and uses barrier protection inconsistently. After some tests, she is diagnosed with *Chlamydia trachomatis* cervicitis. A pregnancy test is also performed, which is negative.

The medication used to treat this patient works by what mechanisms?

- (A) Inhibition of peptidoglycan cross-linking
- (B) Inhibition of dihydropteroate synthase
- (C) Inhibition of DNA topoisomerases
- (D) **Inhibition by blocking the 30S ribosomal subunit**

38. A 30-year-old man presents to his physician with a rash on his left leg. He reports that the rash started as a bug bite and is spreading. He denies any fever, chills, or malaise. His medical history is significant for type 1 diabetes mellitus, and his only medication is insulin. On examination of the left leg, there is a 4-cm area of erythema, swelling, and warmth with indistinct margins. There is no gross purulence.

What antibiotic should this patient receive?

- | | | | |
|------------------------|------------------------------------|----|------------|
| (A) Oral cephalixin | <u>(C) Oral clindamycin</u> | | |
| (B) Oral dicloxacillin | (D) | IV | vancomycin |

39. A 36-year-old man presents with fevers, chills, cough, and night sweats. The symptoms have developed over the past couple of weeks and have been associated with weight loss. His cough is productive of yellow sputum, and he occasionally is short of breath. He does not smoke or use illicit drugs and has never been imprisoned. He is febrile on examination, with decreased breath sounds and rales in the upper lung field. A sputum AFB stain is positive, and his chest x-ray shows an apical infiltrate. He is started on a four-drug regimen. In addition, an HIV test is positive with a CD4 count of 290/mm³ and he is started on antiretroviral therapy. Two weeks later, the patient follows up and reports feeling worse, with increased dyspnea. A repeat chest x-ray shows radiologic worsening of the prior pneumonia. A complete workup for a new source of infection is negative.

Which of the following diagnoses should be considered?

- (A) Allergic reaction to antiretrovirals
- (B) Immune reconstitution inflammatory syndrome**
- (C) Secondary bacterial pneumonia
- (D) Rifampin toxicity

40. A 32-year-old woman presents to her physician complaining of a productive cough for the past 2 weeks. She has not felt well and describes frequent production of yellow or green sputum. Her temperature is 37.5°C with a heart rate of 86 beats per minute and a respiratory rate of 18 breaths per minute. There are some scattered wheezes and rhonchi on auscultation of the lungs that clear with coughing, with no rales or dullness to percussion.

What is the most appropriate next step in management?

- (A) Ampicillin-sulbactam
- (B) Albuterol inhaler as needed
- (C) Sputum cultures order
- (D) Education and symptom management**

41. A 33-year-old woman receives oral antibiotics to treat a mild UTI. She goes on a run, and feels a “pop” above her heel that is associated with severe pain. She has pain and difficulty with plantarflexion of the affected foot.

Which of the following antibiotics is most likely responsible?

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|-----------------------------------|---------------------------------|
| (A) Trimethoprim-sulfamethoxazole | (C) <u>Ciprofloxacin</u> |
| (B) Metronidazole | (D) Azithromy |

42. A 62-year-old man presents with fever, headache, and nuchal rigidity. His mental status is intact, and he has not experienced any seizures. He is admitted to the hospital with a presumptive diagnosis of meningitis, and a lumbar puncture is performed and shows slightly cloudy CSF

without significant blood or xanthochromia. Screening blood laboratory values and CSF studies are pending.

What antibiotics should be started at this time?

(A) Ceftriaxone, vancomycin, and acyclovir

(B) Ceftriaxone, vancomycin, and ampicillin

(C) Ceftriaxone, vancomycin, and dexamethasone

(D) Ceftazidime, vancomycin, ampicillin, and acyclovir

43. 36-year-old woman presents to her physician worried that she is pregnant. She is married and has been sexually active with her husband, and they normally use condoms for contraception. However, his condom broke during intercourse and she is now worried that she will become pregnant. She has urine studies performed, which show a negative pregnancy test and growth of *E. coli* from a clean-catch specimen. Two weeks later, she follows up for repeat testing, which give the same results. She denies any fevers, chills, flank pain, dysuria, hematuria, urgency, or frequency.

What should be done next in the management of this patient?

(A) IV ceftriaxone

(C) Measurement of serum hCG

(B) Oral ciprofloxacin

(D) Reassurance

44. A 32-year-old man comes to the hospital complaining of fever, shortness of breath, and a productive cough that has developed slowly over the past week. He has no other medical history and does not take any medications. His temperature is 38.5°C, blood pressure is 122/78 mmHg, heart rate is 68 beats per minute, respiratory rate is 18 breaths per minute, and oxygen saturation is 98% on room air. There are decreased breath sounds and dullness to percussion over the right lung base. The rest of the physical examination, including cardiac auscultation, is normal. A chest x-ray confirms consolidation of the right lower lobe.

What is the most appropriate course of action for this patient?

(A) Outpatient treatment with azithromycin

- (B) Treat as an outpatient with antibiotics based on the culture and sensitivities
- (C) Admit the patient and treat with levofloxacin
- (D) Admit the patient and treat with ceftriaxone and clindamycin

45. A 9-year-old girl being treated with combination chemotherapy for acute lymphoblastic leukemia (ALL) is noted to have increased levels of blood urea nitrogen (BUN) and creatinine on day 4 of treatment. The patient is immediately started on intravenous normal saline. An ECG is ordered which demonstrates prolonged QT intervals. For confirmation of the diagnosis, several laboratory tests, including a complete metabolic profile, are ordered.

What laboratory abnormalities result from this patient's condition?

- (A) Decreased calcium, increased phosphate, decreased uric acid, decreased potassium
- (B) **Decreased calcium, increased phosphate, increased uric acid, increased potassium**
- (C) Decreased calcium, decreased phosphate, increased uric acid, increased potassium
- (D) Increased calcium, increased phosphate, increased potassium, increased uric acid

46. The physician treating the 9-year-old girl in Question 5 is surprised that a medication was not administered to this patient prior to the initiation of chemotherapy to prevent tumor lysis syndrome.

Which medications might have prevented this patient's renal failure?

- | | |
|----------------|-------------------------------|
| (A) Kayexalate | <u>(C) Allopurinol</u> |
| (B) Insulin | (D) Albuterol |

47. A 38-year-old obese man presents with fatigue. The patient reports several bouts of daytime sleepiness in the past 6 months. He is accompanied by his wife who reports that he snores excessively each night, and that this is causing a strain on their relationship. On physical examination, the patient has a blood pressure of 158/92 mmHg and a BMI of 34 kg/m². The rest of the physical examination is unremarkable. Laboratory studies reveal the following.

Leukocyte count..... 8,500/mm³

Hemoglobin..... 17.9 g/dL

Hematocrit58%
Platelets290,000/mm³

What is the explanation of this patient's laboratory abnormalities?

- (A) **Hypoxemia-induced increase in erythropoietin**
- (B) Myeloproliferative disorder causing myeloid cell clonal proliferation
- (C) A compensatory mechanism for acute blood loss
- (D) Cobalamin deficiency

48. A 37-year-old man with a history of Crohn disease presents with several months of worsening fatigue. The patient reports 1 to 2 glasses of wine per night with dinner, but denies smoking or illicit drug use. Physical examination shows conjunctival pallor. Laboratory results reveal the following.

Leukocyte count5,100/mm³
Hemoglobin8.2 g/dL
MCV..... 110 fL
Platelets190,000/mm³

The patient is started on folic acid and 4 weeks later presents with a hemoglobin level of 10.1 mg/dL. However, he reports a new "pins and needles" sensation in his distal toes and fingers.

Which of the following is the underlying cause of the patient's CURRENT symptoms?

- (A) Inadequate treatment with folic acid
- (B) Iron deficiency
- (C) Glucose intolerance
- (D) **Vitamin B12 deficiency**

49. A 22-year-old woman with a history of epilepsy presents for follow-up. Other than mild fatigue, which she attributes to stress, she has no complaints. The patient has been seizure-free since initiating phenytoin therapy 3 years ago. Of note, the patient was noted to have latent tuberculosis

infection after a positive PPD and has been taking isoniazid for the past 5 months. Physical examination is unremarkable. Laboratory results reveal the following.

Leukocyte count9, 100/mm³
Hemoglobin..... 10.5 g/dL
Mean corpuscular volume104 fL
Platelets210,000/mm³

Which underlying mechanism likely explains the laboratory findings?

- (A) Impaired absorption of folic acid**
- (B) Autoimmune destruction of parietal cells
- (C) Excessive bleeding during menstrual cycle
- (D) Isoniazid depletion of vitamin B6

50. A 31-year-old man presents with progressive dyspnea with exertion, dry cough, and fatigue. He started chemotherapy 2 months previously for advanced testicular cancer. The patient reports that his symptoms have worsened since starting chemotherapy. Physical examination reveals fine inspiratory crackles at the lung bases on auscultation. A high-resolution CT is ordered which shows extensive fibrosis.

Which chemotherapeutic agent is the likely cause of this patient's symptoms?

- (A) Cyclophosphamide
- (B) **Bleomycin**
- (C) Cisplatin
- (D) Vincristin

51. A 33-year-old woman presents with a severe headache that began 5 hours ago. The patient reports that the headache is unilateral on the left side and endorses nausea, an episode of vomiting, and photophobia. Neurologic examination reveals normal muscle strength and no sensory loss.

What is the best next step in the management of this patient?

- (A) Propranolol
- (B) Amitriptyline
- (C) **Chlorpromazine**
- (D) Verapamil

52. A 53-year-old man presents to the hospital accompanied by police officers. He was found walking in the middle of a very busy highway. When asked for his name, age, time, and place, his responses are unintelligible. He has a blood pressure of 154/92 mmHg and a heart rate of 94 beats dilated pupils that are reactive to light. The patient is noted to have an ataxic broad-based gait.

Which of the following is the best initial treatment for this patient?

(A) Haloperidol

(C) Thiamine

(B) Naloxone

(D) Dextros

53. A 26-year-old man presents with a stabbing, severe pain in the left side of his face for the past 2 weeks. The pain is described as a “stabbing knife” sensation and occurs about every 12 to 15 minutes. It lasts for about 4 to 5 seconds. The pain is so unbearable that the patient cannot sleep or function in his employment as an accountant. The patient has tried aspirin and acetaminophen to no avail. Physical examination is unremarkable, but the patient has one of the attacks during the visit and visibly shows excruciating pain.

What is the treatment of choice for this patient’s condition?

(A) Sumatriptan

(C) Morphine

(B) Acyclovir

(D) Carbamazepine

54. A 56-year-old man presents for evaluation of a tremor. The patient reports that over the last 6 months he has been having tremors in both hands that appear to improve with alcohol intake. The patient denies any tremors at rest. The tremor is worsened when he reaches for his coffee cup in the cupboard each morning. The patient reports that his father appeared to be “shaky” but does not recall his exact diagnosis since he passed when the patient was very young. Physical examination demonstrates a tremor that increases in amplitude at the end of goal directed activities (reaching for a piece of paper).

What is the medication of choice for this patient’s condition?

(A) Propranolol

(B) Trihexyphenidyl

(C) Haloperidol

(D) Primidone

55. A 43-year-old woman presents with chronic pain that she describes as occurring “all over her body.” Any movement exacerbates the pain and she reports much difficulty falling asleep at night. She constantly feels fatigued, but she denies fever, weight loss, or obvious muscle weakness. The patient has tried acetaminophen to no avail and has even attempted to run 1 to 2 miles per day with no improvement in her symptoms. The patient has an insignificant past medical history. Physical examination is significant for tenderness to palpation over several specific locations on her body. Neurologic examination is unremarkable and laboratory results are all within normal limits.

Given this patient’s most likely diagnosis, what is the best initial treatment?

(A) Prednisone

(B) Naproxen

(C) Amitriptyline

(D) Colchicine

56. A 57-year-old obese man presents with pain in his bilateral knees that has worsened over the last year. The pain is alleviated by rest and worsened by walking. The patient has never taken any medications for the pain, but warm compresses temporarily cause relief. The patient has a history of type 2 diabetes and hyperlipidemia. Physical examination shows a BMI of 33 kg/m². A “grating” sound is appreciated on palpation over the knee joints bilaterally.

What is the best initial treatment for this patient?

(A) Intra-articular corticosteroid injection

(B) Acetaminophen

(C) Naproxen

(D) Allopurinol

57. A 39-year-old woman with a history of rheumatoid arthritis presents for routine care. The patient's symptoms are well controlled on her current medication regimen. Routine laboratory values reveal the following.

Hemoglobin9.8 g/dL

Mean corpuscular volume (MCV)110 fL

Leukocyte count9,500/mm³

Platelets280, 000/mm³

What this patient is taking for her rheumatoid arthritis?

(A) Methotrexate

(B) Cyclosporine

(C) Corticosteroids

(D) Hydroxychloroquine

58. 61-year-old man with a history of hypertension asks what measures he can take from a nonpharmacologic perspective to manage his hypertension. The patient reports that he drinks 1 to 2 beers per day and smokes a half pack of cigarettes per day.

What lifestyle modification has been shown to result in the greatest reduction in blood pressure?

(A) Weight loss

(B) Decreasing alcohol consumption

(C) Increasing exercise

(D) Smoking cessation

59. A 22-year-old man presents with headache, vomiting, and confusion. His girlfriend reports that he was at a local bar that was hosting a barbeque. Due to inclement weather, the barbecue was held indoors. Physical examination reveals a heart rate of 112 beats per minute, respiratory rate of 24 breaths per minute and diffusely pink skin.

Which of the following is the most likely diagnosis in this patient?

- (A) Cyanide poisoning
- (B) **Carbon monoxide poisoning**
- (C) Methemoglobinemia
- (D) Arsenic poisoning

60. A 9-year-old boy presents with his mother for a health evaluation. The mother reports that her family has experienced many deaths from cancer and she is concerned about her child's health. Physical examination reveals a healthy boy with unremarkable findings. Laboratory values are all within normal limits.

Which vaccine(s) can be given to this patient to reduce his risk of developing cancer?

- (A) Measles, mumps, and rubella
- (B) **Hepatitis B vaccine**
- (C) Hepatitis A vaccine
- (D) Polio vaccine

61. A 29-year-old medical student is injured via needlestick while drawing blood from a patient with chronic hepatitis B. The patient received his final hepatitis B vaccination of the series 8 years ago. The patient had his titers checked before clinical rotations 6 months ago and was found to be positive for anti-hepatitis B surface antibodies (HBsAb).

What is the best next step in the management of this patient?

- (A) Hepatitis B immunoglobuli now
- (B) Serologic testing for HBsAg
- (C) Hepatitis B vaccination
- (D) **Reassurance**

62. A 3-year-old boy presents to the physician and is diagnosed with *Bordetella pertussis*. His mother endorses that he has had several unpredictable coughing episodes. He is given azithromycin for treatment. He lives in the same house with his parents and two sisters (ages 5 and 7). All family members are current on their immunizations.

What is the recommended treatment for his family members?

- (A) Administer azithromycin to the sisters
- (B) **Administer azithromycin to all family members**
- (C) Initiate contact precautions until symptoms resolve
- (D) No prophylaxis needed for family members

63. A 17-year-old girl presents with 2 weeks of weight loss, intractable nausea and vomiting, and a decreased level of consciousness. She is found to have glucose of 439 mg/dL. She is started on IV fluids and insulin. Four hours later, her laboratory tests demonstrate the following.

Sodium..... 143 mEq/L
Potassium4.2 mEq/L
Chloride102 mEq/L
Bicarbonate..... 22 mEq/L
Blood urea nitrogen..... 14 mg/dL
Creatinine0.9 mg/dL
Glucose..... 204 mg/dL

What is the most appropriate next step in management?

- (A) Switch to subcutaneous insulin glargine
- (B) Continue current management
- (C) **Add glucose to the IV fluids**
- (D) Switch to oral metformin

64. A middle-aged man comes to the Emergency Department complaining of 2 days of shaking chills, as well as a cough with foul-smelling sputum and small amounts of blood. He admits to drinking a pint of whisky and smoking 3 packs of cigarettes each day. He has been to prison twice in the last year. A chest x-ray shows right upper lobe infiltrates. His laboratory tests are shown below.

Hemoglobin13.6 g/dL
Leukocyte count16,400/mm³
Sodium..... 135 mEq/L

Potassium4.2 mEq/L
Creatinine0.9 mg/dL
Glucose110 mg/dL

An HIV and tuberculin skin test are both negative.

What is the best next step in management?

(A) Begin ceftriaxone and clindamycin

(B) Begin vancomycin and ceftriaxone

(C) Begin trimethoprim–sulfamethoxazole and prednisone

(D) Begin rifampin, isoniazid, pyrazinamide, and ethambutol

65. A 22-year-old man presents with abdominal pain for the last 4 years. The patient reports that the pain improves with defecation. He denies nausea, vomiting, diarrhea, and weight loss. The patient has an extensive family history of colon cancer (several of whom were diagnosed before the age of 40). Colonoscopy reveals hundreds of polyps in the colon and rectum.

What is the risk of colon cancer in this patient's lifetime?

(A) 10%

(C) 50%

(B) 25%

(D) 100%

66. A 77-year-old man is admitted to the hospital after an acute change in mental status during the previous day, which was following a mild upper respiratory infection. He has a longstanding history of type 2 diabetes and sometimes forgets to take his medications. Blood glucose on admission is 670 mg/dL, and over the course of the first hospital day his urine output is 3 L.

What additional finding would you expect to see in this patient?

(A) Decreased serum osmolarity

(B) Metabolic acidosis

(C) Ketones in the urine, but not in the blood

(D) Severe volume depletion

67. A 29-year-old man is brought to the Emergency Department after suffering multiple stab wounds to his abdomen. He was found on the street actively bleeding. His blood pressure upon arrival was 82/50 mmHg. He received 4 L of IV fluids and 4 units of packed red blood cells. He is sent to the operating room and is then transferred to the intensive care unit. His current vitals show a blood pressure of 110/76 mmHg and a heart rate of 80 beats per minute. A further history is obtained, and he has no medical problems and takes no medications. His laboratory values 24 hours after initial presentation are shown below.

Hemoglobin8.7 g/dL

Blood urea nitrogen38 mg/dL

Creatinine2.8 mg/dL

If a urinalysis is performed, which of the following would most likely be seen?

- (A) Red blood cell casts
- (B) White blood cell casts
- (C) Waxy casts

(D) Muddy brown casts

68. A 55-year-old man presents to his primary care physician for a routine physical examination at his wife's insistence. He has a medical history of benign prostatic hyperplasia and depression, but has refused medications previously. Intake vitals show a blood pressure of 148/92 mmHg, a heart rate of 78 beats per minute, and a respiratory rate of 12 breaths per minute. He is counseled about lifestyle changes and scheduled to follow-up. His elevated blood pressure is confirmed at two more office visits, and screening examinations and tests do not indicate any end-organ damage.

What is the next step in managing his hypertension?

- (A) Begin a low-dose ACE inhibitor
- (B) Begin an α -blocker**
- (C) Begin a β -blocker
- (D) Begin a thiazide diuretic

69. A 44-year-old man presents for a routine health maintenance visit. He has no past medical history. He smokes half a pack of cigarettes daily and does not consume alcohol. His diet consists of fast food on a regular basis. His mother has diabetes and his father has high cholesterol. The patient has a heart rate of 72 beats per minute and a blood pressure of 138/74 mmHg. He has a BMI of 32 kg/m². Laboratory results are shown below.

Total cholesterol198 mg/dL
HDL..... 54 mg/dL
LDL125 mg/dL
Triglycerides150 mg/dL
Fasting glucose130 mg/dL

A repeat fasting glucose 2 weeks later shows a glucose of 134 mg/dL.

Aside from starting the patient on metformin, what is the most appropriate next step in management?

(A) Lifestyle modification only

(B) Oral atorvastatin

(C) Oral niacin

(D) Oral lisinopril

70. A 72-year-old woman with hypertension and hyperlipidemia presents to the clinic with a primary complaint of constipation. Her medications include a “water pill,” a statin, and a daily multivitamin. Her laboratory tests demonstrate the following.

Sodium..... 134 mEq/L
Potassium3.8 mEq/L
Chloride100 mEq/L
Bicarbonate24 mEq/L
Blood urea nitrogen14 mg/dL
Creatinine..... 0.9 mg/dL
Glucose..... 108 mg/dL
Calcium..... 10.7 mg/dL

Parathyroid hormone9.5 pg/mL

Thyroid-stimulating hormone3.2 μ U/mL

What is most likely responsible for the patient's complaint and laboratory findings?

(A) Hydrochlorothiazide

(B) Primary hyperparathyroidism

(C) Secondary hyperparathyroidism

(D) Malignancy

71. A 36-year-old man presents to the hospital with fever and leg swelling. His right lower extremity has a large area of erythema and swelling, and there is purulent drainage from a small area on the leg. He is admitted to the hospital and begins treatment with IV antibiotics. He suddenly develops flushing and pruritus of his face, chest, and upper extremities. What should be done next?

(A) Discontinou the antibiotic immediately

(B) Adding an additional antibiotic to his empiric regimen

(C) Administeration of intramuscular epinephrine

(D) **Slow down the infusion rate of the antibiotic**

72. A 39-year-old man falls off a sailboat and is found much later floating face down in a lake. He is pulled from the water and efforts are made to resuscitate him. A pulse is regained in the ambulance, but he experiences a seizure during transport to the hospital.

What electrolyte abnormality is most likely responsible for this occurrence?

(A) Hyperkalemia

(C) Hypercalcemia

(B) Hyponatremia

(D) Hyperphosphatemi

73. A 24-year-old woman is brought in by ambulance to the Emergency Department following a motor vehicle accident. She is complaining of right flank and abdominal pain. Physical examination is notable for a large ecchymosis over the right flank. A urinalysis is remarkable for 38 RBCs per high-power field.

What is the most likely site of injury?

(A) Kidney

(C) Bladder

(B) Ureter

(D) Liver

74. An 80-year-old woman with a history of atrial fibrillation, dementia, and frequent falls is admitted to the hospital for a UTI. She has no history of stroke. The family is at the bedside and is requesting clarification on her medication requirements, as they are her primary caregivers.

What is the proper anticoagulation regimen for this patient?

(A) Aspirin only

(C) Aspirin and warfarin

(B) Warfarin only

(D) Aspirin and heparin

75. A 53-year-old woman with a history of nonischemic cardiomyopathy and paroxysmal atrial fibrillation presents to the Emergency Department with worsening shortness of breath for the last 3 days. She has also noticed increased swelling in her legs and decreased exercise tolerance. She used to do her grocery shopping for herself but now becomes too fatigued going to the grocery store and has her son do her shopping instead. She also reports intermittent diarrhea, palpitations, and sweating at night. Her laboratory values are shown below.

Hemoglobin9.0 g/dL

Leukocyte count..... 6,400/mm³

Brain natriuretic peptide906 pg/mL (normal range ≤ 100 pg/mL)

TSH0.1 uU/mL

Free T443 ug/dL

Which medication should be stopped?

(A) Carvedilol

(C) Amiodarone

(B) Lisinopril

(D) Warfarin

76. A 56-year-old woman is hospitalized for an asthma exacerbation. She is treated with continuous nebulized ipratropium and albuterol. She recovers without complications and is discharged.

Upon questioning she states that she currently uses an albuterol inhaler nearly every day and a daily low-dose inhaled corticosteroid. She states that she wakes up about one to two times per week in the middle of the night due to her asthma. Pulmonary function tests reveal a FEV1 of 75%.

What is the best pharmacologic addition for the management of her asthma?

(A) Begin a daily oral corticosteroid

(B) Begin a long-acting β -agonist

(C) Begin a high-dose inhaled corticosteroid

(D) Begin theophylline

77. A 46-year-old man presents to the Emergency Department with headache and confusion. His medical history is significant for diabetes mellitus and chronic liver disease. Physical examination reveals a temperature of 39.3°C, nuchal rigidity, and dark skin pigmentation. He is admitted and a lumbar puncture is performed. The results of CSF analysis are shown below.

Leukocytes110/mm³ (predominance of lymphocytes)

Total protein104 mg/dL

Glucose24 mg/dL

A gram stain of the CSF is negative.

Which of the following is likely responsible for this patient's symptoms?

(A) *Haemophilus influenzae*

(C) *Listeria monocytogenes*

(B) *Mycobacterium tuberculosis*

(D) *Neisseria meningitidis*

78. A medical resident has requested information on a recent news story regarding the depletion of magnesium by proton pump inhibitors. She requests more information about the clinical presentation as well as the incidence of this depletion in patients.

What would be the best Internet source to find this information?

(A). www.clinicaltrials.gov.

(C). www.mayoclinic.com.

(B). www.fda.gov.

(D). www.clinicalevidence.com

79. A physician requests a brief summary of a new antidepressant, vilazodone. The pharmacist answering this question has not heard of this drug. Which one of the following resources is best to consult for this information?

(A). MEDLINE, in process.

(C). PubMed.

(B). IDIS.

(D). IPA

80. A physician asks for information about administering omeprazole through a nasogastric tube. The physician specifically wants to know the best dosage form for her patient. Which one of the following resources is best to consult first?

(A). Textbook.

(C). Indexing Service.

(B). Drug Compendium.

(D). Journal

81. . A drug is administered to a patient with liver disorder, which is accompanied by a decline in microsomal enzyme activity. What would most likely happen to the duration of action of the drug?

A. prolonged

D. No significant change

B. Remained unchanged

C. Decreased

82. Dose-response curves are used for drug evaluation in the animal laboratory and in the clinic, Quantal dose-response curves are established by a researcher is often used for

A. determining the therapeutic index of a drug

B. determining the maximal efficacy of a drug

C. determining partial antagonist drug

D. determining the potency of a drug

83. A 30- year- old male patient was given 400 mg of a drug by intravenous (IV) route in a single dose; during the first 120 minutes its 200 mg were eliminated. As this drug follows first order elimination kinetics, after 6 hours the amount of the drug left behind in the blood will be:

A. 200

C. 50

B. 100

D. 25

84. A 25-year-old woman with amenorrhea, infertility, and galactorrhea was treated with a drug that successfully restored ovulation and menstruation. Before being given the drug, the woman was carefully questioned about previous mental health problems, which she did not have. She was advised to take the drug orally. What is the most likely drug that was used to treat this patient?

- A. **Bromocriptine**
B. Desmopressin
C. Human gonadotropin hormone
D. Leuprolide

85. For patients who have been on long-term therapy with a glucocorticoid and who now wish to discontinue the drug, gradual tapering of the glucocorticoid is needed to allow recovery of

- A. Depressed release of insulin from pancreatic B cells
- B. Hematopoiesis in the bone marrow
- C. **The hypothalamic-pituitary-adrenal system**
- D. The control by vasopressin of water excretion

86. A young woman seeks advice because she had unprotected sexual intercourse 12 hours earlier. Based on her menstrual cycle, she believes that conception is possible. What is the most appropriate drug, she should use as a postcoital contraceptive?

- A. Clomiphene
B. Diethylstilbestrol plus raloxifene
C. Ethinyl estradiol combined with norethindrone
D. Flutamide

87. A Patient comes to the community pharmacy with prescription containing the conventional H1 antihistamins. What is the most appropriate advice by the Pharmacist to the patient?

- A. To avoid driving motor vehicles
- B. To avoid consuming processed cheese
- C. To avoid strenuous physical exertion
- D. To avoid fatty meals

88. A hypertensive patient was initially taking nonselective adrenergic blockers) but, did not show any decline in BP. The physician later changed the prescription to Prazosin and it produces a significant effect. What is the most probable reason?
- A. prazosin is the only orally active α_1 blocker
 - B. prazosin improves plasma lipid profile
 - C. prazosin does not concurrently enhance noradrenaline release
 - D. prazosin improves urine flow in males with prostatic hypertrophy
89. A hypertensive patient has been using nifedipine for some time without untoward effects. Later on he experiences a rapidly developing enhancement of the antihypertensive effect of the drug. What is the most likely reason?
- A. Concomitant use of antacids
 - B. Foods containing tyramine
 - C. Grapefruit juice
 - D. Induction of drug metabolism
90. A patient taking antihypertensive drug is complaining about a skin rash and a cough. What is the most likely drug taken by the patient?
- A. Captopril
 - B. Prazosin
 - C. Nifedipine
 - D. Propranolol
91. Diuretics and Beta blockers are administered with vasodilators for treatment of hypertension. In addition to their antihypertensive effect, this combination is to avoid _____ and _____ respectively.
- A. Reflex tachycardia and edema
 - B. Edema and reflex bradycardia
 - C. Edema and reflex tachycardia
 - D. Reflex bradycardia and edema
92. A 30-year- old male patient suffered from aspirin toxicity; this is may be managed by promoting its excretion. What is the most likely drug to facilitate its renal excretion?
- A. Ascorbic acid
 - B. Sodium chloride
 - C. Sodium bicarbonate
 - D. Acid citrate

93. A patient comes to your Pharmacy with the prescription of Aspirin in small doses (50 to 150 mg per day). What is the most likely reason of prescribing this drug.
- A. Is to benefit in patients of unstable angina
 - B. Has thrombolytic action
 - C. Preferentially inhibits prostacyclin synthetase enzyme
 - D. MAY Alleviate need for Verapamil in variant angina
94. A patient comes to your pharmacy with warfarin prescription. The blood level of vitamin K is below normal. What is the effect of decreased vitamin K on action of warfarin.
- A. Enhanced anticoagulatory effect
 - B. Decreased anticoagulatory
 - C. No effect
 - D. Unpredictable effect
95. A 44-year-old woman has developed symmetric early morning stiffness in her hands. She wishes to take a nonsteroidal anti-inflammatory drug to relieve these symptoms and wants to avoid gastrointestinal side effects. Which one of the following drugs is most appropriate?
- A. Aspirin
 - B. Celecoxib
 - C. Ibuprofen
 - D. Indomethacin
96. A prescription of aspirin for a child comes to a Pharmacy. The pharmacist asked whether the patient is suffering from influenza or similar viral infection. The most likely reason to ask such question is to know whether there is
- A. increased risk of Gastric bleeding
 - B. increased risk of Thrombocytopenia
 - C. increased risk of Fancony syndrome
 - D. increased risk of Reye's syndrome
97. A 25-year-old woman was brought to the Emergency room because of a generalized tonic-clonic seizure. Her husband stated that his wife has been suffering from epilepsysince

childhood, but the seizures were only partially controlled by medication. Which of the following pairs of neurotransmitters are thought to be mainly involved in seizure disorders?

- A. GABA and serotonin
- B. GABA and glutamate
- C. GABA and acetylcholine
- D. Serotonin and glutamate

98. A 28-year-old man with a long history of poly-drug abuse states, he feels an intense euphoric sensation every time he self administered any illicit drug. Which of the following neurotransmitters, released in the nucleus accumbens, is thought to mediate the rewarding effect of most abused drugs?

- A. Acetylcholine
- B. Norepinephrine
- C. Dopamine
- D. GABA

99. A 7-year-old child with an accidental over dosage of Chloriazepoxide came to emergency department. What is the most likely antagonist used to treat the patient?

- A. Naloxone
- B. Naltrexone
- C. Flumazenil
- D. Nalorphine

100. A woman has an upper respiratory infection. Six years ago, she experienced an episode of bronchospasm following penicillin V therapy. The cultures now reveal a strain of streptococcus pneumonia that is sensitive to all of the following drugs. Which of these drugs would be the best choice for this patient?

- A. Amoxicillin/clavulanate
- B. Erythromycin
- C. Ampicillin
- D. cefaclor

101. A 7-year-old child presented with brownish discoloured and deformed anterior teeth. History of having received an antibiotic about 4 years earlier was obtained. Which antibiotic could be responsible for the condition?

- A. Chloramphenicol
- B. Tetracycline
- C. Erythromycin
- D. Genetamicin

102. A 19-year-old girl with recurrent sinusitis has been treated with different antibiotics on several occasions. During the course of one such treatment she developed a severe diarrhea and was hospitalized. Colitis caused by pseudomembranes, were confirmed histologically. Which of the following drugs, administered orally, is most likely to be effective in the treatment of colitis due to C difficile?
- A. Ampicillin
B. Cefazolin
C. Clindamycin
D. Metonidazole
103. A 30-year-old patient is suffering from acute attack of malaria, caused by plasmodium vivax parasites. He took chloroquine for this attack but to avoid future relapse of such attack he must be given:
- A. Quinine
B. Mefloquine
C. Artesisinin
D. Primaquine
104. A prescriber wanted to combine the beta lactam antibiotics such as penicillin to produce synergistic effect in the treatment of infection for his patient. What is the most likely antibiotic to be combined with to produce synergistic effect?
- A. Tetracyclines
B. Macrolids
C. Aminoglycosides
D. Quinolones
105. While treating a CHF patient with cardiac glycoside, one noticed that the patient's resting heart rate, which previously had been 86/min is now 40/min. This would probably be.
- A. unrelated to drug administration
B. the desired response of the drug
C. the result of drug-induced heart block
D. An indication for increasing the drug dose.
106. In hypertensive patient a physician wanted to arrests and even reverses cardiac hypertrophy besides lowering blood pressure. What is the most appropriate antihypertensive drug?
- A. ACE inhibitors
B. Betablockers
C. Calcium channel blockers
D. Diuretics

107. A 28- year-old patient taking drugs of the sedative hypnotic class frequently. What is the most likely type of drug interaction that occurs in this patient?
- A. Additive CNS depression
 - B. Antagonism of sedative or hypnotic actions
 - C. Induction of liver drug-metabolizing enzymes
 - D. Inhibition of liver drug-metabolizing enzymes
108. Levodopa and carbidopa combination is prescribed to treat parkinsonian disease. What is the main reason to combine carbidopa?
- A. Selectively stimulates dopa decarboxylase
 - B. Enters the CNS and increases the dopamine in the nigro-striatum
 - C. Reduces levodopa – induced dyskinesias
 - D. Reduces levodopa induced vomiting and nausea
109. A 54-year-old obese patient with type 2 diabetes and a history of alcoholism probably should not receive metformin because it can increase his risk of
- A. A disulfiram-like reaction
 - B. Hypoglycemia
 - C. Lactic acidosis
 - D. Serious hepatotoxicity
110. Incorporation of vasoconstrictor substance in a solution of a drug to be injected subcutaneously retards absorption. This principle is utilized in combination of
- A. Epinephrine with local anaesthetics
 - B. Epinephrine with I.V. glucose
 - C. Epinephrine With vaccines
 - D. Epinephrine With insulin
111. A patient undergoing cancer chemotherapy is vomiting frequently. What drug is most likely help in this situation?
- A. Bromocriptine
 - B. Cimetidine

C. Ketanserin

D. Ondansetron

112. A patient requires a dose of 1 mg of atropine sulphate. Ampoules containing 600 micrograms/ml are available. If a 2 ml syringe graduated to 0.1 ml is available, which of the following provides the nearest dose?

A. 1.5 ml

C. 1.7 ml

B. 1.6 ml

D. 1.8 ml

113. You have been given the following prescription: 'Paracetamol suspension 1 g po qds'. In the dispensary you have a suspension that contains 120 mg of paracetamol in each 5 ml spoonful. How much suspension would you need to dispense, to the nearest 100 ml, for a 2-week (14 days) supply?

A. 1.5 litres

B. 2.0 litres

C. 2.3 litres

D. 2.4 litres

The transaction taken from the stock record card in Adama Hospital shows the consumption of Cloxacillin 500mg capsule for the year 2018. The inventory from the previous year shows that the opening stock of 6 tins of 1000 capsules, drug received 26 tins of 1000 capsules, and closing stock of 2 tins of 1000 capsules. Moreover, amount of Cloxacillin 500mg capsule stolen & expired is 6 tins of 1000 capsules and the stock out period of three months.

114. Based on the information given above, which one of the following is true?

A. The total recorded consumption is 34 tins.

B. The consumption adjusted for avoidable wastage is 30 tins.

C. The consumption adjusted for stock out period is 40 tins.

D. The adjusted consumption is 26 tins.

115. PFSA is synonymous with which one of the following alternatives that are supplying medicines and supplies to governmental and nongovernmental health services.
- A. Central medical stores
B. Autonomous supply agency
C. Direct delivery system
D. **Primary distributor (or prime vendor) system**
116. Suppose you are working at a hospital & appointed as a secretary in DTC. Which one of the following would NOT be your duty & responsibility?
- A. Evaluating and selecting medicines for the formulary list.
B. Assessing medicine use to identify problems.
C. Managing adverse drug reactions.
D. Setting regulatory standards for health facilities.

The information for morbidity method of consumption for acute tonsillitis in a health facility is given below.

- Last total No. of contacts (C)= 3,123,408
- 5% expected rate of increase
- Frequency of acute tonsillitis (per thousand) = (72 for <5, 33 for >5)

Treatment for acute tonsillitis

Under 5

- PenicillinVK 125mg/5ml liquid 5ml QID for 5 days
- Paracetamol solution 120 mg/5ml 1.5 ml QID for 10 days.

Above 5

- Procaine penicillin 3MU injection 1 vial stat.
- PenicillinVK 250 mg tablet 1 tab po QID for 5 days.
- Paracetamol 500 mg 2 tab po QID for 5 days.

All patients of acute tonsillitis are expected to be treated by the above drugs.

Base on the information given above, answer Q4-Q7.

117. The expected number of treatment episode of acute tonsillitis for under 5 is:

- A. 236,130 C. 437, 334
B. 108,226 D. 216, 452

118. The total quantity of Procaine penicillin 3MU injection needed in vials is:

- A. 216,452 C. 23,612,964
B. 108,226 D. 4,167,779

119. The total quantity of paracetamol 500 mg tablet per treatment episode is:

- A. 60 B. 40 C. 20 D. 10

120. The total quantity of PenicillinVK 250 mg tablet needed is:

- A. 4,329,043 C. 108,226
B. 2,164,522 D. 4,167,779

121. Which one of the following is NOT true about formulary manual?

- A. It is summary information on medicines.
B. It is disease centered.

- C. Dosage schedule is basic information in formulary manual.
 - D. It contains Patient counseling information
122. Which one is correctly matched about national drug policy?
- A. Rational use-establishment and support of drugs and therapeutics committees.
 - B. Supply systems-commitment to GMP, inspection and law enforcement.
 - C. Affordability-promotion of drug reimbursement as part of public and private health insurance schemes.
 - D. Drug financing-Reduction of drug taxes, tariffs and distribution margins.
123. In procurement methods, which one has the lowest possible unit price and lowest work load?
- A. Open tender and closed bid
 - B. Open tender and procurement negotiation.
 - C. Procurement negotiation and direct procurement.
 - D. Open tender and direct procurement.
124. All facilities are required to report on a fixed schedule for all products in:
- A. Forced-ordering max-min system
 - B. Continuous review max-min system
 - C. Standard max-min system
 - D. Kardex system
125. Which handling equipment is required in shelving?

- A. Hand Pallet Truck
 - B. Mechanical Hand-Lift Stacker
 - C. Forklift
 - D. Trolley cart
126. Which quantification method is used in estimating need in new and scaling-up programs or disaster assistance?
- A. Morbidity
 - B. Consumption
 - C. Proxy consumption
 - D. Service-level projection of budget requirements
127. The first and the last step in distribution cycle:
- A. Port clearing (for imported products) and storage
 - B. Receipt and inspection, and reporting consumption.
 - C. Port clearing (for imported products) and Reporting consumption
 - D. Requisition of supplies Delivery and reporting consumption
128. One of the following is NOT true.
- A. Maximum Months of Stock for health center and Hospitals is four months
 - B. Safety stock level is affected by average monthly consumption
 - C. A bin card is an individual stock keeping card that keeps information about a single lot of a product.
 - D. Annual counting is the best stock count.
129. In procurement, the visible cost is described as:
- A. Increased acquisition costs due to emergency procurement
 - B. Replacement costs when goods are lost or must be discarded because of poor packaging
 - C. Replacement costs for short shipments.

- D. Operating costs from storage & stock management.
130. Coding is inappropriate for a fluid location system in one of the following stock classification?
- A. Commodity code B. Dosage forms C. Random bin D. Level of use
131. The most common in put measures are the quality-adjusted life year (QALY) and the disability-adjusted life-year (DALY) in:
- A. Cost-effectiveness analysis C. Cost benefit analysis
B. Cost utility analysis D. Cost minimization analysis
- Question 131-132: Ms.Emebet is starting on a new medication for schizophrenia. The drug has a number of side effects, some of which are serious. She asks you several questions about the purpose of the medication and possible side effects. When you ask her what the physician told her about the medication, she reports that he said, “This is a multivitamin. I have got a lot of patients on this multivitamin and they are doing fine.” It is obvious that her doctor does not want to tell her about the side effects of drug because if he does, Ms.Emebet will not take it. So you dispensed the medication as Multivitamin.
132. Both the physician and pharmacist seek for which ethics:
- A. Beneficence B. Justice C. Veracity D. Paternalism
133. Both the physician and pharmacist violets which ethics:
- A. Autonomy – Justice C. Veracity – Autonomy
B. Veracity – Beneficence D. Nonmaleficence – Fidelity

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