

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

I. Select one optimal answer. (30 points)

1. **A 67-year-old woman with history of type 2 DM, and CKD over 10 years. She visited emergency room due to feel uncomfortable and had symptom of nausea. The potassium blood test was 6.3 mEq/L. Which following medications are correct for hyperkalemia, EXCEPT**
 - (A) Furosemide
 - (B) Sodium polystyrene sulfonate
 - (C) NPH insulin + Dextrose
 - (D) Albuterol
 - (E) Sodium bicarbonate

2. **The several specific drug-induced renal structural-functional alterations, which following list is CORRECT?**
 - (A) Amphotericin B -Obstructive nephropathy
 - (B) Radiographic contrast media -Vasculitis and thrombosis
 - (C) Methotrexate - Acute tubular necrosis
 - (D) Aminoglycoside antibiotics - Acute tubular necrosis
 - (E) Nonsteroidal antiinflammatory drugs (NSAIDs) -Obstructive nephropathy

3. **A 70-year-old patient taking carbidopa/levodopa 25/100 mg three times a day for Parkinson disease is experiencing end-of-dose wearing off. The best next step is to:**
 - (A) Add tolcapone
 - (B) Consider surgery
 - (C) Add trihexyphenidyl
 - (D) Increase carbidopa/levodopa to four times daily
 - (E) Use deep brain stimulation devices

4. **Which of following serotonin-norepinephrine reuptake inhibitors (SNRIs) is used cautiously especially on patients' liver function?**
 - (A) Venlafaxine
 - (B) Duloxetine
 - (C) Bupropion
 - (D) Paroxetine
 - (E) All of above

- 5. Which one of the following statements about the use of dipeptidyl peptidase-4 inhibitors (DPP-4i) in patients with type 2 diabetes is INCORRECT?**
- (A) DPP-4i will not increase body weight and will not cause hypoglycemia
 - (B) DPP-4i can be used in patients with end-stage renal disease (ESRD)
 - (C) DPP-4i may increase the risk of pancreatitis
 - (D) DPP-4i may decrease the risk of heart failure
 - (E) DPP-4i may cause severe joint pain
- 6. Which of the following is an appropriate starting dose of atomoxetine for a 10-year-old 45 kg child with ADHD?**
- (A) 20 mg twice daily
 - (B) 25 mg in the morning
 - (C) 10 mg twice daily
 - (D) 30 mg at bedtime
 - (E) 10 mg twice daily + 20 mg at bedtime
- 7. All the following statements about phenytoin for controlling adult epilepsy are correct, EXCEPT**
- (A) Loading dose 15~20 mg/kg
 - (B) Maintenance dose 15~20 mg/kg/day
 - (C) Therapeutic range 10~20 mg/L
 - (D) Decrease valproic acid serum level
 - (E) If serum level >50 mg/L may induce seizure side effect
- 8. If a patient develops an acute loss of vision in one eye while taking a phosphodiesterase type 5 inhibitor, it is most likely due to:**
- (A) Cataracts
 - (B) Floppy iris syndrome
 - (C) Cyanopsia
 - (D) Nonarteritic anterior ischemic optic neuropathy
 - (E) Glaucoma
- 9. The most commonly reported cause of drug-induced neutropenia/agranulocytosis is?**
- (A) Colchicine
 - (B) Calcium carbonate
 - (C) Clozapine
 - (D) Acetaminophen
 - (E) Propranolol

10. Which prescription medication approved to treat AD is also approved to treat dementia associated with Parkinson disease?

- (A) Donepezil
- (B) Galantamine
- (C) Memantine
- (D) Rivastigmine
- (E) Ginkgo biloba

11. About the description of proton pump inhibitor (PPI), which of the followings are INCORRECT?

(1) The inhibition effect of PPI on proton pump is reversible (2) Lansoprazole has dual release of the active ingredient in the duodenum and the small intestine (3) Omeprazole has drug-drug-interaction with clopidogrel, resulting in reduced clopidogrel effect (4) PPI inhibits the H⁺/K⁺ ATPase of the gastric parietal cells to reduce acid secretion

- (A) 1, 2, 3
- (B) 2, 3
- (C) 2, 4
- (D) 1, 3, 4
- (E) 3, 4

12. All the following statements about administration of continuous infusion norepinephrine are correct, EXCEPT

- (A) Central line administration is preferred
- (B) Do not administer sodium bicarbonate (or any alkaline solution) through an IV line
- (C) Usual infusion concentration for adults is 32 mg/mL of D5W
- (D) Extravasation may cause severe ischemic necrosis
- (E) Inactivation of norepinephrine may occur

13. Schizophrenia is a mental disorder that generally appears in late adolescence or early adulthood. Antipsychotic agents are the mainstay of schizophrenic treatments. Which sentence about antipsychotics is INCORRECT?

- (A) Second generation antipsychotics are generally considered to be more effective than first generation antipsychotics for schizophrenia treatment.
- (B) Clozapine has shown superiority over other antipsychotics in randomized clinical trials for the management for treatment resistant schizophrenia.
- (C) Given that it is challenging to differentiate among antipsychotics based on efficacy, side effect profiles become important in choosing an antipsychotic for an individual patients.
- (D) Lithium does not enhance antipsychotic effect but may improve agitated behavior for some

patients.

- (E) Antipsychotics may cause extrapyramidal symptoms, especially for first generation antipsychotics such as haloperidol.

14. A 56-year-old patient was noted to have chronic hepatitis B and liver cirrhosis for 6 years. He suffered from hematemesis and tarry stool 2 days ago and received esophageal varices ligation. He started to try diet afterward. His heart rate was 60 beats/min, blood pressures were 120/80 mmHg. Which of following statement is INCORRECT?

- (A) Propranolol is indicated
(B) Nadolol is indicated
(C) The goal of beta-blocker usage is to lower the heart rate at 45 - 50 beats/min
(D) The goal of beta-blocker usage is to maintain the systolic blood pressure > 90mmHg
(E) The occurrence of orthostatic hypotension is the indication for stopping beta-blocker

15. All the following statements about macrolide antibiotics are correct, EXCEPT

- (A) Recommended dose of azithromycin for community acquired pneumonia in adults is 200 mg once daily for 3 days
(B) Clarithromycin could treat for *H.pylori* infection
(C) Erythromycin is prokinetic agent
(D) No dosage adjustment necessary for clarithromycin if CrCl >30 mL/minute
(E) The concomitant use of azithromycin with warfarin may result in increased the risk for bleeding

II. Fill the blank with proper answer in following two cases. (30 points)

LG is a 61-year-old woman who was diagnosed with non-ST-segment elevation ACS. She presents to the emergency room with chest tightness and shortness of breath.

_____ (1) _____ is recommended in patients with ongoing ischemic discomfort at home, control of hypertension or management of heart failure. _____ (2) _____ should be considered for LG with 160-325 mg orally once and _____ (3) _____ with _____ (4) _____ mg orally on hospital day 1. β -blockers should be considered for LG within 24 hours if no contraindication, and _____ (5) _____ should be started within 24 hours for those with an EF \leq 40% or clinical evidence of heart failure. Initiate or continue high-intensity statin therapy, such as _____ (6) _____ with _____ (7) _____ mg, during early hospital care is recommended.

Mr. Lin, 66-year-old male who presents for a regular follow-up appointment six months after aortic valve replacement surgery for severe aortic stenosis. However several weeks of fever was noted, then he went to ER, where two out of two sets were positive for *Staphylococcus aureus* and Transesophageal Echocardiogram documented "A six-millimeter vegetation is noted on the aortic valve with mild aortic regurgitation. Mild

dehiscence of prosthetic valve is noted. No perivalvular abscess noted.”. So Infective Endocarditis was impressed.

The culture result is methicillin- susceptible *Staphylococcus aureus*, the recommended combination antimicrobial therapy are oxacillin plus ____ (8) ____ plus gentamicin. After 4 days, the culture result is methicillin- resistant *S. aureus*, alternative antibiotic ____ (9) ____ replace oxacillin for further treatment. The recommended duration for treatment is ____ (10) ____ weeks.

III. For each drug in column, match most relevant description. (10 points)

1. Propylthiouracil	6. Apixaban
2. Enoxaparin	7. Tramadol
3. Metronidazole	8. Vedolimumab
4. Paroxetine	9. Biktarvy®
5. Certolizumab	10. Tacrolimus

- A. Biologics could be used to treat inflammatory bowel disease
- B. Test for hepatitis B virus infection prior to or during initiation
- C. Maintain whole blood trough concentrations between 4 to 11 ng/mL
- D. For non-valvular atrial fibrillation with 5 mg BID
- E. Pregnant women with overt hyperthyroidism
- F. Tumor necrosis factor (TNF)-alpha blockers for psoriasis in pregnancy
- G. Overdose will induce seizures or serotonin syndrome
- H. Maintenance therapy for thromboembolism throughout pregnancy period
- I. Most recommended drug for bacterial vaginosis in pregnancy
- J. Pharmacotherapy for treatment of postpartum depression

IV. Answer the questions (30 points)

1. Anticoagulants remain the primary strategy for the prevention and treatment of thrombosis. Novel oral anticoagulants have emerged from clinical development and are expected to replace older agents with their ease to use and more favorable pharmacodynamic profiles. To describe how to manage anticoagulated patients undergoing elective surgery or invasive procedures. (15 points)
2. Design a Drug use evaluation (DUE) or Medication use evaluation (MUE) study in clinical setting, contents including study purpose, significant, step of methods and expected results. (15 points)