

※ 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. All the following statements about the use of SGLT-2 inhibitors in patients with type 2 diabetes are correct EXCEPT**

- (A) The major mechanism of SGLT-2 inhibitors is to inhibit glucose reabsorption in proximal renal tubules.
- (B) SGLT-2 inhibitors may decrease A1C, body weight, and blood pressure.
- (C) SGLT-2 inhibitors may increase risk of urinary and genital tract infection.
- (D) SGLT-2 inhibitors can be used in patients with stage 4 chronic kidney disease
- (E) SGLT-2 inhibitors are associated with lower cardiovascular event rate and mortality in patients with cardiovascular disease (empagliflozin and canagliflozin)

**2. Mrs. Lin had frequent acid regurgitation for 2 months. She received an endoscopy and it showed grade C reflux esophagitis (GERD). You review her used drugs as follows. Which one could worsen her GERD symptom?**

- (A) Metoclopramide
- (B) Nifedipine
- (C) Metformin
- (D) Spironolone
- (E) Alendronate

**3. About preparing ophthalmic solutions, which one of following is NOT correct?**

- (A) Pharmacist should review documentation that substantiates the safety and benefit of the product when administered into the eye.
- (B) Sterilization is required and filtration of the preparation through a 0.22- $\mu$ m filter into a sterile final container is a commonly used method.
- (C) All extemporaneous compounding of ophthalmic products should be performed in a certified laminar airflow hood.
- (D) For eye drops, osmolality could be equivalent to 0.6% - 2% NaCl.
- (E) Preservatives should be used in the preparation of multi-dose intraocular injection solutions.

**4. Which of the following cephalosporin is approved for the treatment of complicated skin and soft tissue infections due to susceptible organisms including vancomycin-intermediate Staphylococcus aureus (VISA)?**

- (A) Ceftaroline

- (B) Cefepime
  - (C) Cefotaxime
  - (D) Ceftriaxone
  - (E) Cefpirome
5. Which prescription medication approved to treat Alzheimer's disease is also approved to treat dementia associated with Parkinson disease?
- (A) Donepezil
  - (B) Galantamine
  - (C) Memantine
  - (D) Rivastigmine
  - (E) Bromocriptine
6. For patients with benign prostatic hyperplasia (BPH) and essential hypertension, it is not recommended to treat both conditions with a single  $\alpha$ -adrenergic antagonist. This is because patients would be at increased risk of:
- (A) Orthostatic hypotension
  - (B) Congestive heart failure
  - (C) Pulmonary embolism
  - (D) Renal failure
  - (E) Liver failure
7. Mr. H has a history of calcium phosphate kidney stones and is allergic to sulfa. Which is the worst choice of antiseizure drug to use in the treatment of Mr. H's partial seizures?
- (A) Topiramate
  - (B) Lacosamide
  - (C) Zonisamide
  - (D) Carbamazepine
  - (E) Oxcarbazepine
8. A 70-year-old man with asymptomatic hypogonadism is diagnosed with osteoporosis. He is found to be at high risk for hip fracture. Which of the following is the best initial treatment?
- (A) Risedronate and testosterone
  - (B) Denosumab and testosterone
  - (C) Alendronate alone
  - (D) Ibandronate alone
  - (E) Testosterone alone

9. Which antidepressant medication may be a 'safer' choice for pregnancy in early stage?
- (A) Paroxetine
  - (B) Fluoxetine
  - (C) Bupropion
  - (D) Sertraline
  - (E) Selegiline
10. A 37 year old female presents with the following: FEV1 76% predicted, use of albuterol (for rescue) 5-6 days/week, waking with asthma symptoms 4-5 times/month, and increased asthma symptoms during her daily walk to work and workouts. Preferred therapy options for your 37 year old patient would be:
- (A) SABA prn plus short course OCS.
  - (B) SABA prn plus low dose ICS/LABA
  - (C) SABA prn plus medium dose ICS/LAMA
  - (D) SABA prn plus high dose ICS
  - (E) Referral to specialist
11. A 28-year-old male was hospitalized for severe ulcerative colitis with bloody diarrhea. Which drug is NOT suitable for this situation (i.e. induction therapy) because its response is too slow?
- (A) Mesalamine
  - (B) Methylprednisolone
  - (C) Azathioprine
  - (D) Adalimumab
  - (E) All above are not suitable
12. Which statement for acute hypertension is NOT correct?
- (A) Hypertension emergency is defined as SBP $\geq$  180 mmHg or DBP $\geq$ 120 mmHg and symptoms of end-organ damage
  - (B) Avoid use nitroprusside if patients with AKI
  - (C) IV labetalol or nicardipine for pregnancy women
  - (D) Avoid use beta-blockers or hydralazine for acute pulmonary edema
  - (E) All above are correct
13. Which one of the followings is not suitable for treatment of liver cirrhosis with massive ascites?
- (A) Salt restriction (sodium < 2g/day)
  - (B) Spironolactone
  - (C) Furosemide

- (D) Propranolol
- (E) Albumin infusion

14. Which of the following adjuvant chemotherapy combinations is most appropriate for the treatment of early stage breast cancer?

- (A) Docetaxel, doxorubicin, cyclophosphamide (TAC)
- (B) Irinotecan, fluorouracil, leucovorin (IFL)
- (C) Cyclophosphamide, doxorubicin, vincristine, prednisone (CHOP)
- (D) Doxorubicin, Paclitaxel (AT)
- (E) Doxorubicin, ifosfamide (AI)

15. C.T. is a 4-year-old male with newly diagnosed pre-B cell ALL. His presenting WBC is 26,000 cells/mm<sup>3</sup>. Cytogenetic studies are pending. The most appropriate induction regimen for CT is:

- (A) High dose cytarabine plus an anthracycline
- (B) Vincristine, corticosteroid, pegaspargase
- (C) Methotrexate, mercaptopurine, prednisone
- (D) Daunorubicin, cytarabine, etoposide
- (E) Vincristine, corticosteroid, etoposide

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

BD, 61-year-old male, is a pigeon fancier with a past medical history includes hypertension, chronic kidney disease and GERD. He came to ER and complained of headache and fever. After several examinations, he was admitted due to cryptococcus meningitis couldn't be rule out.

1. Rapid sterilization of CNS through rapid fungicidal activity is the main approach of induction therapy, which ranges from \_\_\_\_ (1) \_\_\_\_ weeks, followed by consolidation therapy for \_\_\_\_ (2) \_\_\_\_ weeks.
2. The preferred antifungal regimen of induction therapy is amphotericin B plus \_\_\_\_ (3) \_\_\_\_ for HIV-uninfected patients and amphotericin B alone or in combination with high-dose \_\_\_\_ (4) \_\_\_\_ may be reasonable alternative treatment for HIV-positive patients.
3. Amphotericin B liposome (AmBisome<sup>®</sup>) was prescribed to BD. According to the information provided by manufacturer, AmBisome<sup>®</sup> should avoid be reconstituted with \_\_\_\_ (5) \_\_\_\_.
4. Finally, AmBisome<sup>®</sup> was diluted with proper solution to yield total 500 mL solution for injection. Infusion rate should NOT be higher than \_\_\_\_ (6) \_\_\_\_ mL/min to avoid from infusion-related reactions.

YK is a 54-year-old woman who was diagnosed with type 2 diabetes mellitus after a routine follow-up for impaired fasting glucose showed that her hemoglobin A1C is now 7.6%. She has attempted to lose weight

and exercise with no improvement in her hemoglobin A1C, and drug therapy is now recommended. She also has hypertension with medication control but poor adherence.

5. The most appropriate antidiabetic first-line therapy for this case is \_\_\_\_ (7) \_\_\_\_, and the goal of hemoglobin A1C is \_\_\_\_ (8) \_\_\_\_.
6. The most appropriate antihypertensive agent for this case is \_\_\_\_ (9) \_\_\_\_, and the goal of SBP/DBP is \_\_\_\_ (10) \_\_\_\_.

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

1. Asunaprevir	6. Azithromycin
2. Atomoxetine	7. Bupropion
3. Carbidopa/levodopa	8. Ciprofloxacin
4. Dasabuvir	9. Glipizide
5. Regular insulin	10. Zidovudine(ZDV)/Lamivudine (3TC)

- A. Anti-HCV agent is NS3/4A inhibitor
- B. Anti-HCV agent is NS5B inhibitor
- C. Empirical antimicrobial therapy for community-acquired pneumonia in previous healthy adults.
- D. Empirical antimicrobial therapy for atypical pneumonia in adults.
- E. First choice for smoking cessation
- F. Management of Attention Deficit/Hyperactivity Disorder
- G. Onset: 30 minutes, Duration: 6 hours
- H. Preferred sulfonylurea for the elderly
- I. NRTI combination with most experience for use in HIV pregnancy
- J. The most effective drug for Parkinson's disease

### IV. Answer the questions (30 points)

1. Pharmacists are committed to optimizing pharmaceutical therapies for each patient to improve outcomes and reduce costs. They are making significant contributions to the profession through specialized pharmaceutical care. Please describe how to provide comprehensive geriatric pharmaceutical care. (15 points)

**2. Using SOAP format to identify medication-related problem in this following case: (15 points)**

Name: Ms. Wang, age: 55 y/o, bw: 75 kg, height: 163 cm, SBP/DBP: 160/100 mmHg

Occupation: worker

Medical history:

Nephrotic syndrome (biopsy result shows focal segmental glomerulosclerosis)

Chronic kidney disease

Hyperlipidemia

Medication history:

Amlodipine 5 mg/tab 1# qd

Atorvastatin 40 mg/tab 1# qd

Cyclosporin 100 mg/cap 1# bid

Prednisolone 5 mg/tab 10# qd

Lab data:

eGFR: 37 ml/min/1.73m<sup>2</sup>

HbA1C: 15.8%

Chief complaint: conscious change and drowsiness in this morning and admitted to emergency room