

**ROYAL CIVIL SERVICE COMMISSION**  
**CIVIL SERVICE COMMON EXAMINATION (BSCE) 2011**  
**PAPER III: SUBJECT SPECIALIZATION FOR BSc. Pharmacy**

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**Date 30<sup>th</sup> October 2011**

**Examination time: 2hours 30 minutes**

**Reading Time: 15 minutes**

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1. Read the question carefully before proceeding to answer
2. Follow the instruction on top of every section
3. Section A consist of two parts Part A and Part B
  - a. Answer all the question in part A by circling the correct answers, each question @ 1 mark x 30 question
  - b. Answer all the question in part B, in brief and to the point. Each question @ 5 marks x 4 questions.  
Use separate answer sheet/sheets.
4. Section B consists consists of 3 case studies. You are required to answer only one case study @ 50X1 questions.
5. Before submitting the papers mention the number of answer sheet attached to ensure that the papers are not lost or tampered, in the field below

**Number of answer sheets attached**

**Section A Part A**

**Multiple Choice questions** (1X30=30 marks)

**Answer all the questions;**

The answer of your choice should be clearly written **in whole** along with the question and option number on your answer booklet.

1. **A prescription order for an antibiotic preparation includes the directions, "ii gtt AU q.i.d." What auxiliary label should be affixed to the prescription order container?**
  - a) Take With Meals.
  - b) For the Eye.
  - c) For Rectal Use.
  - d) For the Ear
  
2. **To dispense an order calling for: prednisone 5 mg, one t.i.d. X 3 days; one b.i.d. X 3 days; one q.d. X 3 days, the total medication needed is:**
  - a) 15 tablets.
  - b) 18 tablets.
  - c) 21 tablets.
  - d) 24 tablets.
  
3. **An example of a major drug-drug interaction would be:**
  - a) warfarin-aspirin.
  - b) digoxin-diltiazem.
  - c) Penicillin-cephalexin.
  - d) hydrocodone-codeine
  
4. **The appearance of crystals in mannitol injection would indicate that the product:**
  - a) Was exposed to excessive cold.
  - b) Has settled during shipping.
  - c) Contains impurities and should be returned.
  - d) Was formulated using sterile saline.
  
5. **Hiv Protease Inhibitors**
  - a) Zidovudine
  - b) Interferone
  - c) Nevirapine
  - d) Ritonavir
  
6. **HIV drug most likely to change serum concentrations of fluoxetine (Prozac®)**

- a. Ritonavir
- b. Zidovudine
- c. Lamivudine
- d. Stavudine

**7. First available reverse transcriptase drug for treatment of HIV-1; a deoxythymidine analogue**

- a. Ritonavir
- b. Zidovudine
- c. Lamivudine
- d. Stavudine

**8. Development of resistance to acyclovir (Zovirax) in varicella-zoster virus**

- a. Increased Acyclovir metabolism
- b. Alteration in Viral DNA Polymerase
- c. Increased Acyclovir transport out of the cell
- d. All of the above

**9. Your dispensary has the following Anti bacterial**

**1. Erythromycins 2. Cephalosporins 3. Tetracyclines**

**The anti bacterial from the above which is generally safe to prescribe in pregnancy are:**

- a. 1 & 2
- b. 2 & 3
- c. 1 & 3
- d. 1 & 2 & 3

**10. Antibacterial that inhibits cell wall synthesis:**

- a. Streptomycin
- b. Vancomycin
- c. Doxycycline
- d. Gentamicin

**11. Combination of Metronidazole and penicillin in treating an abscess caused by beta-lactamase producing bacteria and anaerobic streptococci is an example of**

- a. Synergistic drug treatment
- b. Antagonistic drug effect
- c. Additive drug effect
- d. None of the above

**12. Ototoxicity and Nephro-toxicity are associated with this antibiotic**

- a) Cefotaxime
- b) Amikacin
- c) Aztreonam
- d) Ceftriaxone

**13. Mediators in acute inflammation: Pain**

- a. Histamine
- b. Serotonin
- c. Leukotrienes
- d. Bradykinin

**14. Initial drug of choice for treating most articular and musculoskeletal disorder (Cost effective safety and efficacy)]**

- a. Glucocorticoids
- b. Aspirin
- c. Diclofenac
- d. Indomethacin

**15. Which of the following drugs should not be administered to a patient with CCF because the drugs may reduce contractility and also not be administered in asthmatic patient as it may decrease bronchiolar smooth muscle**

- a. Digoxin
- b. Terbutalin
- c. Metoprolol
- d. Atropine

**16. The following are not a class I Anti arrhythmic drugs:**

- a. Quinidine  
Gluconate
- b. Lidocaine
- c. Encainide
- d. Verapamil

**17. Which of the following is a Ace inhibitor**

- a. Nifedipine
- b. Enalapril
- c. Bisoprolol
- d. Hydralazine

**18. Antihypertensive drugs belonging to the same class**

- a. Doxazosin, Prazosin, metoprolol
- b. Nifedipine, verapamil, diltiazem
- c. Clonidine, Guanabenz, terazosin
- d. Lisinopril, Fisinopril, propopanolol

**19. Mechanism of action of Diltiazem:**

- a. Inhibition of ACE
- b. Blockade of Calcium channel
- c. Alpha 1 receptor antagonist
- d. Beta 1 receptor antagonist

**20. Mechanism of action of Losartan**

- a. ACE inhibitor
- b. Angiotensin antagonist
- c. A & B
- d. None of the above

**21. The most effective anti-emetic for patient receiving Cisplatin**

- a. Metoclopramide
- b. Ondansetron
- c. Both
- d. Neither

**22. Centrally acting anti-emetic**

- a. Chlorpromazine
- b. Bismuth sub salicylate
- c. Cholestyramine
- d. Lidocaine

**23. Drugs used to correct Hyperglycemia associated with type II diabetes**

- a. Insulin
- b. Sulfonylurease
- c. Both
- d. Neither

**24. You are showing two of your students how to fill some large liquid prescriptions.**

**One of them asks you how many ml are there in one gallon according to the metric system. How do you answer?**

- a. 2763 ml
- b. 3986 ml
- c. 2894 ml
- d. 3840 ml

**25. One of your Technicians needs to fill a child's prescription and only has the adult dose. He asks you what Clark's Rule is for calculating children's dosage. What do you tell him?**

- a. Take the age of the child, divide it by the age of the child plus 12 and multiply it by the adult dose
- b. Take the adult dose X the weight of the child and subtract 150
- c. Take the age of the child, divide it by 12, and multiply that by the adult dose
- d. Take the adult dose X (the weight of the child/150)

**26. You tell your employee that he can also calculate the dosage using Young's Rule. What is Young's Rule?**

- a)  $(\text{Adult dose}/150) \times \text{weight of child}$
- b)  $\text{Years of child age}/(\text{age of child} + 12) \times \text{adult dose}$
- c)  $\text{C. Age of child}/(\text{age of adult} - 12) \times \text{adult dose}$
- d)  $(\text{Age of child} + 12)/\text{age of adult} \times \text{years of child's age}$

**27. You tell your employee that there is also a basic way of calculating children's dosages. What is it?**

- a. Take adult dose and divide it by the conversion factor (1.7)
- b. Take the adult dose and multiply it by the conversion factor (1.7)
- c. Take the adult dose, divide by the conversion factor ( 1.7) and subtract 12
- d. Take the adult dose, multiply by the conversion factor (1/7) and subtract 12

**28. Which of the following is an antidote for Acetaminophen Toxicity**

- a. Atropine
- b. Acetylcysteine
- c. Naloxone
- d. Pyridoxine

**29. In the treatment of Tuberculosis as per the national TB Guideline Bhutan**

**4 FDC(adult) contains**

- a. RHZE150/75/400/275
- b. RHZE 300/150/200
- c. RHZE150/75/400/500
- d. RHZE 75/75/400/275

**30. In the new Guideline for Immunization in Bhutan Hepatitis B vaccine (monovalent)**

**is given to a child at :**

- a. 6, 10 and 14 weeks
- b. Birth within 24 hours
- c. First contact
- d. None of the above

**Section A Part B**

**Short answer questions (5X4=20 marks)**

**Answer all the questions;**

Answer in brief and to the point

- I.** List down the various procedures in preparation of the annual indents for drugs. Mention the formula used.
- II.** List down the objective of the Essential Drugs program
- III.** What do you understand by Pharmacovigilance? List down its importance in drug safety
- IV.** Mention the role of communication in good dispensing practice.

**Section B**

**Answer any one of the case studies (1X50=50 marks)**

**Case study I**

You are a hospital pharmacist visiting your regular general medical ward to review patients and provide pharmaceutical advice. Mr. X is a 50-year-old accountant who was admitted 2 days ago to hospital following a blackout whilst watching a football match with his son. His preliminary examination reveals bruising to his left arm and upper thigh for which he has been prescribed paracetamol 1 g four times daily and as required ibuprofen 400 mg three times a day.

His past medical history indicates that he is on no medication and seemed to be a reasonably fit man for his age with no existing diagnosed medical conditions. On examination he is slightly overweight at 81 kg, he smokes 20 cigarettes per day and drinks approximately 30 units of alcohol per week. His blood pressure on admission was 165/80 mmHg with a heart rate of 90 beats per minute. This degree of raised blood pressure and heart rate has been maintained over the last 48 hours. He is subsequently diagnosed as having hypertension.

Questions

1. What is hypertension?
2. What are the appropriate treatment targets for this patient's blood pressure?
3. Besides blood pressure, what other advice and treatment does this patient require ensuring his risk of a cardiovascular event is reduced? Give clear reasons for your advice and explain the risks associated with not taking this advice.
4. What are the main classes of drug used to treat hypertension?
5. Which class of drug would be appropriate first line treatment for Mr.X?
6. For one of the classes of drugs mentioned in question 4 indicate the following:
  - a. drug from that class
  - b. suitable starting dose and frequency
  - c. the maximum dose for hypertension
  - d. three contraindications
  - e. Three common side-effects.
7. In view of Mr X's age he requires cardiovascular risk assessment. How would you assess this patient's cardiovascular risks?

## Case Study II

A 30-year-old pregnant woman presents to your pharmacy with a new prescription for cefalexin 500 mg three times a day for one week. She is worried about possible effects on the developing baby.

### Questions

1. What organisms cause urinary tract infections (UTI)?
2. What is the incidence of UTI in pregnancy?
3. What are the presenting features, signs and symptoms of UTI?
4. What are the possible complications of UTI during pregnancy?
5. What are the management recommendations for cystitis in pregnancy?
6. Which antibiotics used to treat UTI can be safely prescribed in pregnancy?
7. Which antibiotics used to treat UTI can be used with caution during pregnancy?
8. Which antibiotics used to treat UTI should be avoided or are contraindicated during pregnancy?
9. How would you counsel the patient on the medication she has been prescribed?
10. What nutritional advice could you offer the patient to aid a healthy pregnancy?

### Case III

Mr Y (61 years) is admitted to the emergency complaining of palpitations, breathlessness and dizziness. He has a 5-day history of some dizziness and palpitations. In the last 24 hours he complained additionally of shortness of breath. He collapsed at home and was then admitted to hospital via the emergency department.

He experienced similar symptoms two months ago but did not seek medical advice at that time and seemed to recover quickly. On examination and review by the admitting doctor the following information is obtained:

#### ***Previous medical history***

Hypertension (diagnosed 5 years ago), no previous history of cardiovascular disease. The patient is a regular cigarette smoker (>20 per day) and drinks approximately 20 units of alcohol per week.

#### ***Drug history***

No known allergies. Mr Y had been prescribed Enalapril tablets 10 mg once daily but was poorly compliant with treatment.

#### ***Signs and symptoms on examination***

- a. Blood pressure 100/70 mmHg
- b. Heart rate 175 bpm, irregular
- c. Respiratory rate 25 breaths per minute
- d. No basal crackles in the lungs.

#### ***Diagnosis: Atrial fibrillation.***

***Relevant test results:*** Full blood counts, liver function tests, electrolytes and renal function were all normal at admission and throughout the admission to discharge.

Mr Y is subsequently transferred to the Medical ward where his continuing atrial fibrillation is later confirmed as persistent atrial fibrillation. As clinical pharmacist, you are responsible for daily review of drug charts and advice to medical and nursing staff on all aspects of drug treatment for patients on the ward.

### Questions

1. What is atrial fibrillation?
2. What are the most common signs and symptoms exhibited by patients with atrial fibrillation? Indicate which of these signs and symptoms the patient is exhibiting.
3. What are the two options in terms of treatment strategy that may be employed to manage atrial fibrillation? Indicate what would be the most appropriate strategy that you could recommend to the doctor managing this patient and why you think this is the case.
4. Assuming a rate control strategy is to be used what class of drug should be the first-line treatment for this patient? If the first-line drug was contraindicated what class of drug could be used as alternative treatment?
5. What patient parameters should be monitored to assess therapy with the usual first-line treatment and what is an appropriate treatment target for such parameters?
6. What are the two options in terms of antithrombotic prophylaxis in this patient and what are the potential side-effects of each? State which of these is the most appropriate for this patient and why?
7. Assuming the patient is to be discharged on a beta-blocker and aspirin, what counselling does he require?