

**山东大学医学院**  
 (2007—2008 学年第二学期)  
 2005 级临床医学七年制  
 药理学期末考试试题 (A 卷)

**FINAL TERM EXAMINATION OF PHARMACOLOGY FOR  
 7-YEARS-2005**

题号	一	二	三	四	五	六	七	总分	统分人
得分									

得分	统分人

一、名词解释：(每题 2 分，共 10 分)

**1. First-order kinetics**

扣分	
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**2. Therapeutic index**

扣分	
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**3. Placebo**

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**4. Post antibiotic effect**

扣分	
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**5. Superinfection**

扣分	
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得分	统分人

二、选择题 (A 型每题 0.6 分;X 型每题 1 分, 共 40 分)

**Type A choice questions (only one answer is correct)**

- pA<sub>2</sub> is called**
  - therapeutic index**
  - affinity index**
  - antagonist index**
  - dissociation constant**
  - elimination rate constant**
- A weak base drug with pKa9, if the medium in which it is dissolved has a pH7, what will be ratio of the concentrations of ionized to unionized forms of the base?**
  - 100: 1**
  - 1: 100**
  - 10: 1**
  - 1000: 1**
  - 1: 1**
- Which of the following is unlikely to be associated with oral drug administration of an enteric-coated dosage form?**
  - irritation to the gastric mucosa with nausea and vomiting**
  - destruction of the drug by gastric acid or digestive enzymes**
  - unpleasant taste of the drug**
  - formation of nonabsorbable drug-food complexes**
  - variability in absorption caused by fluctuations in gastric emptying time**
- Which of the following statement is NOT true?**
  - uptake1 refers to neuronal uptake**
  - uptake2 refers to metabolism uptake**
  - uptake1 is the main pathway of NA termination**
  - uptake2 mostly happens in vesicles**
  - uptake1 is a kind of active transport**
- Which of the following anticholinesterase agents is drug choice in the treatment of Alzheimer's disease?**
  - neostigmine**
  - Edrophonium chloride**
  - Rivastigmine**
  - Physostigmine**
  - Organophosphates**

6. Which of the following is NOT the indication of scopolamine?
- A. pre-anaesthesia medication
  - B. prevention of motion sickness
  - C. Alzheimer's disease
  - D. Parkinson disease
  - E. traditional medicine anaesthesia
7. Which of the following mydriasis agents belongs to adrenoceptor agonists?
- A. atropine
  - B. phenylephrine
  - C. cyclopentolate
  - D. tropicamide
  - E. eucatropine
8. To relieve anxiety symptoms, we usually use
- A. phenobarbital
  - B. perphenazine
  - C. chlorpromazine
  - D. imipramine
  - E. benzodiazepines
9. Which of the following drugs is contraindicated in the patients with epilepsy?
- A. phenobarbital
  - B. imipramine
  - C. digoxin
  - D. chlorpromazine
  - E. aspirin
10. All of the following produce a significant decrease in peripheral resistance EXCEPT
- A. chronic administration of diuretics
  - B. hydralazine
  - C. ACE inhibitors
  - D.  $\beta$ -R blockers
  - E. Calcium channel blockers
11. All of the following measures can be used in the treatment of digoxin-induced arrhythmia EXCEPT
- A. stopping digoxin administration
  - B. diuretic agents such as furosemide are used to promote the excretion of digoxin
  - C. phenytoin administration
  - D. atropine administration
  - E. lidocaine administration
12. The reason that digoxin can reduce the ventricular rate of atrial fibrillation

patient is

- A. Decreasing automaticity of ventricles
- B. Decreasing automaticity of atria
- C. Reducing the conduction of A-V node
- D. improving cardiac ischemia
- E. shortening the effective refractory period atria

13. Which of the following is the most serious main side effect of statins and this effect would be increased if a statin is taken with ciclosporin, gemfibrozil or nicotinic acid?

- A. Gastrointestinal problems
- B. Rhabdomyolysis
- C. Elevated blood pressure
- D. Migraine headaches
- E. palpitations

14. The antihypertensive mechanism of diuretics for long-term use is

- A. increasing water and sodium excretion from the kidneys.
- B. decreasing sodium concentration in vascular smooth muscle cell
- C. increasing the activity of rennin
- D. decreasing the activity of rennin
- E. decreasing the secretion of aldosterone

15. In which of the following drugs orthostatic hypotension occurs most frequently in first use?

- A. clonidine
- B. nifedipine
- C. propranolol
- D. enalapril
- E. prazosin

16. Which of the following statements about catopril is wrong?

- A. inhibiting ACE
- B. causing dry cough
- C. It is contraindicated to pregnant woman
- D. promote the excretion potassium
- E. increase bradykinin concentration in the blood

17. Which of the following drugs is not suitable to treat the patient with angina pectoris accompanied with asthma?

- A. nifedipine
- B. propranolol
- C. nitroglycerin
- D. verapamil
- E. isosorbide dinitrate

18. The drug choice for ventricular arrhythmia caused by cardiac glycosides poisoning is

- A. propranolol
- B. sodium phenytoin
- C. quinidine
- D. amiodarone
- E. procainamide

19. Which of the following mechanism best accounts for the decreasing blood sugar effect of glibenclamide?

A. stimulating  $\beta$ -cell in pancreatic island directly, promoting the release of insulin

- B. inhibit the activity of  $\alpha$ -glycosidase
- C. decreasing the absorption of glucose
- D. increase the sensitivity of insulin to target organism
- E. directly activating insulin-receptors

20. Which of the following statements about the treatment of chronic heart failure is wrong?

- A. patients with evidence of fluid retention should receive a diuretic.
- B. treatment with an ACE inhibitor and a  $\beta$ -R blocker should be initiated and maintained unless specifically contraindicated.
- C. digoxin may be added if needed to reduce symptoms or to slow the ventricular response in patients with rapid atrial fibrillation.
- D. patients with severe heart failure should also receive a  $\beta$ -R blocker
- E. spironolactone may reduce mortality in patients with severe heart failure

21. A 76-year-old male with CHF and hearing loss is given a diuretic as part of a regimen that includes digoxin and an ACE inhibitor. In the course of treatment, he develops an AV conduction defect and is found to be hypomagnesemic. She also has worsening hearing loss, which is reversed when the drug stopped. Which of the following diuretics did she used?

- A. furosemide
- B. hydrochlorothiazide
- C. spironolactone
- D. amiloride
- E. mannitol

22. A 70-year-old female is treated with sublingual nitroglycerin for her occasional bouts of angina. Which of the following is involved in the action of nitroglycerin?

- A.  $\alpha$ -adrenergic activity
- B. phosphodiesterase activity
- C. phosphorylation of light chains of myosin
- D. norepinephrine release

E. cGMP increased

23. A 56-year-old female has recently developed essential hypertension, for which she is receiving chlorothiazide to lower her blood pressure. Which of the following ions would not increase concentration in her urine?

- A.  $K^+$
- B.  $Cl^-$
- C.  $Ca^{2+}$
- D.  $Na^+$
- E.  $Mg^{2+}$

24. A 58-year-old patient with a history of hypertension and congestive heart failure administering some drugs, now he complains of nausea, blurred vision and bradycardia, intoxication of glycoside is suspected, then digoxin is stopped, which of the following drugs also must be stopped?

- A. nifedipine
- B. diazoxide
- C. hydrochlorothiazide
- D. prazosin
- E. clonidine

25. Which of the following disease can be treated with large dose of iodine ?

- A. cretinism
- B. solid edema
- C. endemic goiter
- D. thyroid crisis
- E. mild thyroidism

26. The appropriate target in the nephron of furosemide is

- A.  $Na^+/K^+ / 2Cl^-$  cotransporter of the luminal membrane in the ascending limb of Henle's loop
- B.  $Na^+/2Cl^-$  cotransporter of the luminal membrane in the distal tubule
- C. competes with aldosterone for intracellular cytoplasmic receptor sites
- D.  $Na^+/H^+$  exchanger of the luminal membrane in collecting duct
- E. carbonic anhydrase of proximal tubule

27. Being antagonizing 5-HT<sub>3</sub> receptor, the drug with significant effect against vomiting is

- A. cimetidine
- B. promethazine
- C. ondansetron
- D. ranitidine
- E. nizatidine

28. Vit K is a substance to prevent or reduce bleeding caused by

- A. heparin

- B. aspirin**
- C. urokinase**
- D. streptokinase**
- E. dicoumarin**

**29. Which of the following mechanisms best accounts for the anti-thyroid effect of methylthiouracil?**

- A. inhibiting peroxidase and decreasing the thyroxin synthesis**
- B. inhibiting the thyroid releasing**
- C. inhibiting the absorption of iodine**
- D. interfering with the utilization of iodine**
- E. decomposing the thyroxin**

**30. A 60-year-old diabetic male is treated with pioglitazone. What is the mechanism of pioglitazone ?**

- A. increased release of endogenous insulin**
- B. decreased plasma glucagon levels**
- C. increased hepatic gluconeogenesis**
- D. increased target tissue sensitivity to insulin**
- E. decreased intestinal absorption of glucose**

**31. Which of the following is the most important approach in preventing peptic ulcers from recurrence?**

- A. coating the ulcer crater**
- B. eradicating infection with H. Pylori**
- C. inhibiting secretion of gastric acid at the proton pump**
- D. blocking receptor activation of gastric acid secretion**
- E. neutralizing secreted gastric acid**

**32. Which of the following statements about insulin is NOT true?**

- A. It can cause hyperglycemic reaction**
- B. It can't be administrated orally**
- C. Its mechanism of action is through intracellular receptor pathway**
- D. It can be used in IDDM and NIDDM**
- E. It can cause anaphylactic reaction**

**33. All of the following are indications of glucocorticoids EXCEPT**

- A. rheumatic arthritis**
- B. bronchial asthma**
- C. peptic ulcer**
- D. endotoxic shock**
- E. childhood acute leukemia**

**34. Which of the following statements about heparin is true ?**

- A. mild anticoagulative effect**
- B. slow onset of effect**

- C. no anticoagulative effect in vitro
  - D. possessing anticoagulative effect in vitro
  - E. It can be administrated orally
35. The antiasthmatic effect of salbutamol is attributed to
- A. stimulation of  $\beta_2$  receptor
  - B. blockade of M-receptor
  - C. activation of guanylate cyclase
  - D. increase of intracellular cGMP
  - E. inhibition of phosphodiesterase
36. Which of the following therapies is the best for a patient with status asthmaticus?
- A. aminophylline p.o.
  - B. hydrocortisone i.v.
  - C. inhaling sodium cromoglycate
  - D. inhaling beclomethasone
  - E. salbutamol p.o.
37. A 75-year-old woman is hospitalized for pneumonia and treated with an intravenous antibiotic, on the 3rd day, she developed serious diarrhea, stool is positive for Clostridium difficile toxin. What is the best treatment?
- A. clindamycin
  - B. cefaclor
  - C. metronidazole
  - D. erythromycin
  - E. chloramphenicol
38. A 35-year-old female complains of itching in the vulval area, examination of the urine reveals trichomonads, what is the preferred treatment for trichomoniasis?
- A. doxycycline
  - B. ofloxacin
  - C. piperacillin
  - D. metronidazole
  - E. chloramphenicol
39. All of the following statements about antibiotics are accurate except
- A. the cephalosporins inhibit cell wall synthesis by inhibiting  $\beta$ -lactamases
  - B. tetracyclines inhibit protein synthesis of bacterial by interacting with the 30s ribosomal subunit.
  - C. aminoglycosides inhibit protein synthesis of bacterial by interacting with the 30s ribosomal subunit.
  - D. polymyxins act to disrupt the selective permeability of bacterial cell membranes by insertion into the lipid bilayer.



- E. trimethoprim inhibits dihydrofolate reductases of bacteria.
40. Which of the following agents is NOT an antimetabolite?
- A. cytarabine (Ara-C)
  - B. cyclophosphamide (CTX)
  - C. fluorouracil (5-FU)
  - D. methotrexate (MTX)
  - E. mercaptopurine (6-MP)
41. Which of the following drugs can be used to treat AIDS?
- A. acyclovir
  - B. zidovudine
  - C. ribavirin
  - D. idoxuridine
  - E. vidarabine
42. Which of the following antibiotics is most effective against infection caused by methicillin-resistant staphylococcus aureus (MRSA) ?
- A. erythromycin
  - B. vancomycin
  - C. streptomycin
  - D. ofloxacin
  - E. imipenem
43. Which of the following agents may cause damage to growing cartilage?
- A. fluoroquinolones
  - B. sulfonamides
  - C. aminoglycosides
  - D. cephalosporins
  - E. tetracyclines
44. Why is vitamin B<sub>6</sub> usually prescribed with isoniazid(INH)?
- A. it acts as a cofactor of isoniazid
  - B. it prevents some adverse reaction of INH therapy
  - C. it has antituberculosis effect
  - D. it prevents metabolism of INH
  - E. it decreases the occurrence of drug resistance
45. Common properties of aminoglycoside antibiotics include all of the following except
- A. poor absorption after oral administration
  - B. extensive metabolism in vivo
  - C. dependence on glomerular filtration for their elimination
  - D. commonly produce ototoxicity
  - E. commonly produce nephrotoxicity
46. A 30-year-old male diabetic with renal complications develops acute nephritis,

**P.aeruginosa is found in urine cultures and blood cultures. Combined therapy is instituted with an aminoglycosides and which of the following?**

- A. clavulanic acid**
- B. a second-generation cephalosporin**
- C. azithromycin**
- D. piperacillin**
- E. vancomycin**

**47. A young woman using an oral contraceptive is to be treated for pulmonary tuberculosis. She is advised to use an additional method of contraception since the efficacy of the oral agent is commonly decreased if her drug regimen includes**

- A. streptomycin**
- B. ethambutol**
- C. rifampin**
- D. isoniazid**
- E. pyrazinamide**

**48. Which of the following drugs is the drug choice in the treatment of severe fungal pneumonia or cryptococcal meningitis?**

- A. terbinafine**
- B. griseofulvin**
- C. amphotericin B**
- D. flucytosine**
- E. ketoconazole**

**49. All of the following antibiotics act by interfering with protein synthesis except**

- A. doxycycline**
- B. amikacin**
- C. chloramphenicol**
- D. cefaclor**
- E. clindamycin**

**50. Erythromycin can not be used for patients with**

- A. mycoplasmal pneumonia**
- B. legionella pneumonia**
- C. diphtheria**
- D. typhoid**
- E. pertussis**

**Type X choice questions (one or more answers may be correct)**

**51. Which of the following drugs belong to the first-line drugs therapy for hypertension in current?**

- A. a vasodilator such as hydralazine**

- B. a cardiac glycoside such as digoxin
  - C. a  $\beta$ -receptor blocker such as propranolol
  - D. a thiazide diuretic such as hydrochlorothiazide
  - E. an ACE inhibitor such as captopril
52. Which of the following is (are) not the indication of mannitol?
- A. cerebral edema
  - B. glaucoma
  - C. preventing acute renal failure
  - D. congestive heart failure
  - E. oliguria caused by shock
53. Which of the following statements about amiodarone are (is) true?
- A. it increases APD and ERP
  - B. it blocks  $\alpha$  and  $\beta$ -adrenoreceptors
  - C. it can cause pulmonary fibrosis
  - D. it can cause hyper- or hypothyroidism
  - E. it has reverse use-dependence
54. Which of the following diseases are the contraindications of glucocorticoids?
- A. fulminant epidemic cerebrospinal meningitis
  - B. psychosis
  - C. diabetes mellitus
  - D. severe hypertension
  - E. chickenpox
55. Which of the following drugs is useful in treating diabetes mellitus after the excision of pancreas?
- A. tolbutamide
  - B. phenformin
  - C. glibenclamide
  - D. insulin
  - E. gliclazide
56. Which of the following statements about dicumarol is (are) true?
- A. Vitamin K is its competitive antagonist
  - B. It can inactivate coagulant factor II a, VIIa, IXa, X a
  - C. It is effective in vivo, not in vitro
  - D. Cimetidine can weaken its anticoagulant effect
  - E. It can inhibit the aggregation of platelet
57. Metronidazole can be used in the treatment of
- A. Syphilis
  - B. Trichomonas vaginalis infection
  - C. Bacterial dysentery
  - D. Anaerobic infections

E. *Helicobacter pylori* infection

58. A young woman with pregnancy should avoid using which of the following drugs to treat urinary tract infection caused by gram-negative rods?

- A. gentamicin
- B. ceftriaxone
- C. ofloxacin
- D. tetracycline
- E. SMZco

59. Quinolones can NOT be used in the patients who

- A. have epilepsy history
- B. are in growth and development period
- C. are taking antiacid
- D. are pregnant
- E. are allergic to penicillin

60. Which of the following clinical indications may require a combination of antibiotics?

- A. treatment of mixed infections
- B. treatment of tuberculosis
- C. treatment of cryptococcal meningitis
- D. treatment of gonorrhoea
- E. treatment of severe infections of unknown origin

得分	统分人

三、问答题（共 50 分）

1. Please describe the pharmacological effects, clinical uses, adverse reactions and contraindications of atropine in ophthalmological (眼科的) diseases according to their interrelationship. (10 points)

扣分	评卷人

**2. Please compare the differences of analgesic effects between NSAIDs and opioid analgesics . (10 points)**

扣分	评卷人

**3. Please describe the pharmacological effects and clinical uses of calcium channel blockers in cardiovascular system(10 points)**

扣分	评卷人

**4. Please describe the adverse effects of glucocorticoids when they were long term used in large dose ? (10 points)**

扣分	评卷人

**5. Please describe the adverse reactions and prevent measures of penicillin G.  
(10 points)**

扣分	评卷人

**2005 级临床医学七年制  
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一、名词解释:

1. **first-order kinetics**: 一级消除动力学, 即恒比消除, 指药物在体内的消除速率与药物的浓度成正比
2. **therapeutic index**: 治疗指数, 即 LD50/ED50 的比值。
3. **Placebo**: 安慰剂, 不含药理活性成分, 只含赋形剂, 在外观和口味上与药物完全一样的制剂。
4. **post antibiotic effect**: 指细菌与抗生素短暂接触, 当抗生素浓度下降, 低于 MIC 或消失后, 细菌的生长仍然受到抑制的效应。
5. **Superinfection**: 长期应用广谱抗生素, 使体内敏感菌群被杀死, 不敏感的菌株趁机大量繁殖, 引起新的感染, 称为二重感染。

二、 选择题

单选:

1. C 2.A 3.E 4.D 5.C 6.C 7.B 8.E 9.D 10.D 11.B 12.C 13.B  
14.B 15.E 16.D 17.B 18.B 19.A 20.D 21.A 22.E 23.C 24.C 25.D  
26.A 27.C 28.E 29.A 30.D 31.B 32.A 33.C 34.D 35.A 36.B 37.C  
38.D 39.A 40.B 41.B 42.B 43.A 44.B 45.B 46.D 47.C 48.C 49.D  
50.D

多选

- 51.CDE 52.D 53.ABCD 54.BCDE 55.ACDE 56.ABC 57.BDE 58.ACDE  
59.ABCD 60.ABCE

三、问答题:

1. **Please describe the pharmacological effects, clinical uses, adverse reactions and contraindications of Atropine in ophthalmological (眼科的) diseases according to their interrelationship. (10 points)**

参考答案要点:

- (1) 药物的药理作用决定临床应用和不良反应——2 分
- (2) 阿托品在眼科的作用:  
扩瞳(阻断瞳孔/虹膜括约肌上的 M 受体); 升高眼内压(扩瞳, 前房角间隙变窄);  
调节麻痹(阻断睫状肌上 M 受体, 悬韧带拉紧, 晶状体变扁平)。  
——每项基本作用各 1 分, 解释机制加 1 分, 共 4 分
- (3) 阿托品在眼科的应用: 虹膜睫状体炎(扩瞳作用); 眼底检查(扩瞳作用);  
验光配眼镜(调节麻痹作用); ——每项应用 0.5 分, 对应作用加 0.5 分, 共 3 分
- (4) 阿托品不良反应及在眼科的禁忌症:  
眩光(括瞳), 眼痛(升高眼内压), 视物模糊(调节麻痹)(0.5 分), 青光眼(升高眼内压)(0.5 分)



**2. Please compare the differences between NSAIDs and opioid analgesics . (10 points)**

答案:

- (1) 吗啡类镇痛机制是激动阿片受体;阿司匹林类是抑制 PGS 的合成。(2分)
- (2) 吗啡类镇痛部位主要在中枢;阿司匹林类主要是在外周。(2分)
- (3) 吗啡类镇痛作用强大,各种类型的疼痛均有效;阿司匹林类中等程度镇痛,只是对慢性钝痛效果好。(2分)
- (4) 吗啡类镇痛应用:多种疼痛均有效,特别是几种剧痛,如癌症、严重创伤、烧伤、手术、心肌梗死等引起的。除癌症镇痛外,一般仅用于其他镇痛药无效时的短期应用。(2分)
- 阿司匹林类对慢性钝痛如头痛、牙痛、神经痛、肌肉或关节痛、痛经等效果良好。可作为一线镇痛药物使用。(2分)
- (5) 吗啡类能产生欣快感和成瘾性;阿司匹林类不产生欣快感和成瘾性。(2分)

**3. please describe the pharmacological effects and clinical uses of calcium channel blockers in cardiovascular system(10 points)**

答案:

- (1) 钙通道阻滞剂对心血管的作用:对心脏有负性肌力、负性频率和负性传导作用(3分)。对血管有舒张作用,主要舒张动脉,对静脉影响小(2分)。
- (2) 钙通道阻滞剂主要用于防治心血管疾病,如:高血压(1分)、心绞痛(1分)、心律失常(1分);也可用于外周血管痉挛性疾病(1分)、预防动脉粥样硬化发生(1分)。

**4. Please describe the adverse effects of glucocorticoids when they were long term used in large dose ? (10 points)**

答案:

- (1) 医源性肾上腺皮质功能亢进:物质代谢紊乱所致(1分),具体表现:满月脸,水牛背,向心性肥胖(1分)皮肤变薄,浮肿,骨质疏松(1分)多毛,痤疮(1分)高血压,高血脂,尿糖等(1分)
- (2) 诱发或加重感染(1分)
- (3) 心血管系统并发症:高血压,动粥(1分)
- (4) 消化系统并发症:诱发加重溃疡(1分)
- (5) 肌萎缩,骨质疏松,伤口愈合迟缓(1分)
- (6) 青光眼(1分)

**5. Please describe the adverse reactions of penicillin G and how to prevent?(10 points)**

答案:

- (1) 变态反应(或过敏反应):

包括一般反应如：药疹，皮炎，药热等（1分）

严重：过敏性休克（1分）

（2）赫氏反应（1分）

（3）预防过敏性休克的措施：

① 详细询问病史，用药史，药物过敏史及家族过敏史，如有过敏史，禁用（1分）

② 用前进行皮试（1分），用药间隔 24 小时以上及更换药物批号需重新进行皮试（1分）

③ 不要在没有抢救设备和药物的情况下使用青霉素（1分）

④ 青霉素溶液要现用现配（1分）

⑤ 一旦出现过敏性休克，马上注射肾上腺素（1分），严重者需同时用 GCS 和抗组胺药，同时采用其他急救措施如吸氧等以防引起死亡（1分）。