

一、是非題 (每題 1 分，共 20 分)，請在答案卡上作答。是 (O) 請填 A，非 (X) 請填 B

每題答對得 1 分。答錯倒扣 1 分，直到本大題 20 分扣完為止。該題若不作答，不給分也不倒扣分數。

1. Aspirin reduces the peroxide site of the cyclooxygenase (COX) to increase the production of prostaglandins.
2. Compared to Naproxen, Celecoxib has decreased risk of gastric toxicity but increased risk of cardiovascular toxicity.
3. Compared to Allopurinol, Febuxostat has decreased risk of Stevens-Johnson syndrome but increased risk of liver toxicity.
4. Compared to Ethambutol, Isoniazid has decreased risk of liver toxicity but decreased risk of red-green color blindness.
5. Pyrazinamide is activated in the acidic environment to reduce mycolic acid synthesis in mycobacteria.
6. Dapsone increases folic acid synthesis in hepatocytes to reduce the toxicity of Methotrexate.
7. Valacyclovir suppresses both thymidine kinase and DNA polymerase of Herpesvirus.
8. Oseltamivir suppresses both RNA polymerase and protease of Influenza virus.
9. Tenofovir suppresses RNA-dependent DNA polymerase of both human immunodeficiency virus (HIV) and hepatitis B virus (HBV).
10. Fluconazole suppresses the synthesis of ergosterol in fungi.
11. Amphotericin B targets ergosterol on fungal membrane.
12. Terbinafine suppresses the synthesis of ergosterol in fungi.
13. Zolpidem suppresses GABA_B receptor, which is a calcium channel.
14. Lemborexant suppresses both orexin OX₁ and OX₂ receptors.
15. In contrast to Famotidine, dosage of Lansoprazole does not need adjustment in patients with renal insufficiency.
16. In contrast to Rabeprazole, Vonoprazan does not need acidic environment for its activation.
17. In contrast to Metoclopramide, Domperidone is less likely to penetrate through the blood-brain barrier (BBB.)
18. In contrast to Alosetron, Erythromycin is less likely to cause diarrhea.
19. Adalimumab can be used for the treatment of inflammatory bowel disease (IBD.)
20. Vedolizumab can be used for the treatment of psoriasis.

二、單擇題 (每題 2 分，共 20 分)，請在答案卡上作答。

21. One 53-year-old man has been diagnosed with metastatic cancer. The physician intends to use panitumumab. What kind of gene testing should be confirmed to ensure the efficiency of panitumumab?
- (A) EGFR expression & wild-type KRAS
 - (B) EGFR expression & mutant-type KRAS
 - (C) VEGFR expression & mutant-type KRAS
 - (D) VEGFR expression & wild-type KRAS
22. Which of the following medication is for treating "opioid overdose"?
- (A) Loperamide.
 - (B) Meperidine

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(C) Methadone

(D) Naloxone

23. Which one of the following is a short-acting hypnotic?

(A) Phenobarbital

(B) Triazolam

(C) Diazepam

(D) Chlordiazepoxide

24. How does alendronate work to reduce osteoclast number in the body?

(A) Inhibits HMG-CoA reductase activity

(B) Ca²⁺-sensing receptor

(C) ATP-dependent potassium channels

(D) Inhibits farnesyl pyrophosphate synthase activity

25. Which of the following anti-obesity drugs "does not" suppress appetite?

(A) Lorcaserin

(B) Sibutramine

(C) Qnexa

(D) Orlistat

26. Which of the following agents is considered a narrow-spectrum antibiotic?

(A) Ciprofloxacin

(B) Imipenem

(C) Isoniazid

(D) Ceftriaxone

27. What class of drug is "Linagliptin"?

(A) biguanide

(B) α -glucosidase inhibitor

(C) dipeptidyl peptidase-4 (DPP-4) inhibitor

(D) glucagon-like peptide-1 (GLP-1) agonist

28. Which of the following statements is NOT true about the mechanism of action (MOA) of opioid analgesics?

(A) Morphine administration induces adenylyl cyclase activity, leading to an increase in the formation of cAMP.

(B) Most of the potent analgesics currently in use act through the mu-opioid receptor.

(C) Potassium channels have been reported to be involved in several actions of morphine following mu-receptor activation.

(D) Morphine shows inhibitory effects on calcium influx.

29. Which of the following statements is NOT true about the “opioid withdrawal syndrome” ?

- (A) Insomnia
- (B) Dilated pupils.
- (C) Spastic constipation
- (D) Depression and anxiety

30. How does finasteride work to treat androgenic alopecia?

- (A) Inhibits androgen receptor
- (B) Inhibits 5 α -reductase
- (C) Inhibits estrogen receptor
- (D) Inhibits progestin receptor

三、 問答題，試述下列藥物之作用機制和主要臨床用途? (共 20 分) ，請在答案卷上作答。

1. Sodium-glucose cotransporter-2 inhibitor
2. Valsartan
3. Digoxin
4. Acetazolamide
5. Atorvastatin

四、 問答題，下列各題中，請簡述藥物在作用機制、臨床用途與副作用的異同。(共 14 分) ，請在答案卷上作答。

1. Chlorpheniramine 及 Fexofenadine
2. Sumatriptan 及 Ergotamine
3. Granisetron 及 Aprepitant
4. Alprostadil 及 Misoprostol
5. Zafirlukast 及 Nedocromil
6. Ibuprofen 及 Celecoxib
7. Cimetidine 及 Famotidine

五、 問答題，簡述下列藥物的作用機制與臨床用途。(共 6 分) ，請在答案卷上作答。

1. Icatibant
2. Rilonacept
3. Ranibizumab
4. Selexipag
5. Alemtuzumab
6. Acitretin

六、 問答題。(共 20 分) ，請在答案卷上作答。

1. Using genetic engineering to prepare chimeric antigen receptor T cells (CAR-T): Kymriah (tissagenlecleucel), as an immunotherapy, has been successfully used to treat patients with acute lymphocytic leukemia (ALL), becoming an emerging cell drug. Please explain its potency and mechanism of action. (8%)

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2. Kadcyla (trastuzumab emtansine) is an emerging combination drug for cancer treatment. Please explain its mechanism of action. (4%)
3. The main ingredient of common pain relievers is acetaminophen (such as Paracetamol). When an overdose of Paracetamol is taken, it can cause liver damage and acute liver failure. Please explain its toxicological mechanism and the detoxification mechanism of the antidote (N-acetylcysteine). (8%)

試題隨卷繳回