

Part I : 50%**Select the correct answer (2% each topic)**

1. Which of the following chemicals can cause substance P release in the central nervous system?
 - A. dopamine
 - B. acetylcholine
 - C. capsaicin
 - D. amphetamine
 - E. gama-aminobutyric acid
2. Activation of α_1 receptors is associated with
 - A. cardioacceleration
 - B. Vasodilation
 - C. Pupillary dilation (mydriasis)
 - D. Bronchodilation
 - E. Uterus dilation
3. Accepted therapeutic indications for the use of antimuscarinic drugs include all of the following EXCEPT
 - A. Parkinson's disease
 - B. Hypertension
 - C. traveler's diarrhea
 - D. Motion sickness
 - E. Postoperative bladder spasm
4. Dilation of vessels in muscle, constriction of cutaneous vessels, and positive inotropic and chronotropic effects on the heart are all actions of
 - A. Metaproterenol
 - B. Norepinephrine
 - C. Acetylcholine
 - D. Epinephrine
 - E. Isoproterenol
5. Phentolamine and tolazoline
 - A. Produce hypotension
 - B. Cause bradycardia
 - C. Induce vasospasm in large doses
 - D. Cause hypertension
 - E. Block both alpha and beta receptors

(背面仍有題目,請繼續作答)

6. Drugs that have been found to be useful in one or more types of heart failure include all of the following EXCEPT
- A. Na⁺/K⁺ ATPase inhibitors
 - B. Alpha adrenoceptor agonists
 - C. Beta adrenoceptor agonists
 - D. Angiotensin converting enzyme inhibitors
 - E. Thiazide diuretics
7. Which of the following would be most useful in patients with cerebral edema?
- A. Acetazolamide
 - B. Amiloride
 - C. Ethacrynic acid
 - D. Furosemide
 - E. Mannitol
8. Which of the following drugs inhibits cyclooxygenase irreversibly?
- A. Hydrocortisone
 - B. Histamine
 - C. Ibuprofen
 - D. Acetylsalicylic acid
 - E. Nitroprusside
9. All of the following can be used for chronic oral therapy of arrhythmia EXCEPT
- A. Disopyramide
 - B. Amiodarone
 - C. Esmolol
 - D. Verapamil
 - E. Procainamide
10. Central neurotransmitters may:
- A. Increase chloride conductance, resulting in an inhibitory postsynaptic potential (IPSP)
 - B. Increase potassium conductance, resulting in an excitatory postsynaptic potential
 - C. Increase sodium conductance, resulting in an IPSP
 - D. Increase calcium conductance, resulting in an IPSP
 - E. Increase magnesium conductance, resulting in an IPSP
11. Toxic effects of corticosteroids include all of the following EXCEPT
- A. Hypoglycemia

- B. Osteoporosis
C. Growth inhibition
D. Salt retention
E. Psychosis
12. A polypeptide that causes increased capillary permeability and edema is
A. Captopril.
B. Histamine
C. Bradykinin
D. Saralasin
E. Angiotensin II
13. The following items concerning with mechanisms of general anesthesia are true, EXCEPT
A. All anesthetics increase threshold for firing of CNS neurons.
B. CNS neurons in different regions of the brain have different sensitivities to general anesthetics.
C. The anesthetic mechanisms may involve blockade of ion channels by interactions with membranes lipids or proteins.
D. The anesthetic mechanisms may involve their effects on neurotransmitter release.
E. The potency of most inhalational anesthetics correlates positively with their hydrophilic property.
14. Effects of insulin include all of the following EXCEPT
A. Increase glucose transport into cells
B. Induction of lipoprotein lipase
C. Decreased gluconeogenesis
D. Stimulation of glycogenolysis
E. Decreased conversion of amino acids into glucose
15. The development of opioid-tolerance is:
A. Respiratory depression > miosis > sedation
B. Analgesia > bradycardia > convulsion
C. Euphoria > constipation > vomiting
D. Cough suppression > tachycardia > antidiuresis
E. Analgesia > mydriasis > bradycardia
16. All of the following demonstrations about opioid analgesic effects are correct EXCEPT

(背面仍有題目,請繼續作答)

- A. They can cause miosis.
B. They can decrease smooth muscle tone.
C. They can cross the placental barriers.
D. Supraspinal analgesia is mediated by μ_1 receptors.
E. They may increase brain $p\text{CO}_2$.
17. Which statement about mechanisms underlying opioid-induced analgesia is CORRECT?
- A. In presynaptic terminals, opioids may open calcium gate and thus lead to decrease in neurotransmitters release.
B. Opioid agonists inhibit the release of excitatory transmitters from primary afferent fibers and they directly inhibit the dorsal horn pain transmission neuron.
C. In postsynaptic neurons, opioids may produce IPSP and thus decrease potassium gate close and gama aminobutyric acid release.
D. Opioid antagonists can decrease pain experience and pain threshold.
E. Opioid agonists may produce mydriasis when tolerance develops.
18. Hormones that increase cAMP in the target organ include
- A. Vasopressin
B. Prolactin
C. Luteinizing hormone
D. Growth hormone
E. Oxytocin
19. Which of the following agents is the most potent agent in stimulating pepsinogen and mucus secretion?
- A. Caffeine
B. Gastrin
C. Ethanol
D. Methacholine
E. Histamine
20. Which of the following items are involved in gastric mucosal cytoprotection?
- A. Increase in mucosal cytokine release
B. Increase in mast cell degranulation
C. Increase in acid back-diffusion
D. Increase in mucosal lipid peroxide content
E. Increase in generation of mucosal sulhydryl compounds

21. Lovastatin has all of the following effects EXCEPT
- Results in increased synthesis of high affinity low density lipoprotein receptors
 - Decreases low density lipoprotein plasma levels
 - Increases serum transaminase levels
 - May cause skeletal muscle pain and rhabdomyolysis
 - Stimulates lipoprotein lipase
22. Which of the following demonstrations about sucralfate is INCORRECT?
- It should be taken before the meal.
 - It increases generation of superoxide dismutase.
 - It inhibits gastric acid secretion and peptic activity.
 - It shows trophic action on gastric mucosa.
 - It increases gastric intramural pH of ulcerated mucosa.
23. The following factors may be involved in the etiology of Helicobacter pylori-induced gastritis and mucosal damage, EXCEPT
- Generation of tumor necrosis factor
 - Augmentation of free radical formation
 - Increase in mast cell sensitivity and histamine release
 - Elevation of ascorbate synthesis
 - Increase in gastrin 17, gastrin releasing peptide and acid secretion
24. Which of the following demonstrations about prostaglandins is CORRECT?
- They can protect gastric mucosa by increasing release of cytoprotective substances.
 - Cyclooxygenase 1 can damage gastric mucosal cells while cyclooxygenase 2 can protect them.
 - Lipoxygenase also is an important enzyme in modulating biosynthesis of prostaglandins.
 - Prostaglandin E₂ is more potent in regulating gastric mucosal blood flow than that does by prostaglandin I₂.
 - Prostaglandin E₂ can produce potent vasoconstriction, therefore, they are effective in the amelioration of gastric hemorrhage.
25. Which of the following explanations about metoclopramide is CORRECT?
- It produces more potent somnolent effect than that of phenothiazine.
 - It can cause bronchodilation.
 - It may stimulate prolactin release and cause galactorrhea.
 - It can be used in the treatment of diabetic vagal neuropathy.
 - High doses may cause Crohn's disease.

(背面仍有題目,請繼續作答)

Part II : 50%

1. Describe what happens to a drug after it is administered? (10%)
2. Briefly describe the categories of drugs used for the treatment of hypertension. What are their mechanisms of action and common side effects? (10%)
3. Explain the following terms: (10%)
 - a. G protein coupled receptors
 - b. Tyrosine kinase linked receptors
 - c. Steroid receptors
 - d. Ligand-gated ion channels
4. Explain the mechanism of action of the following drugs? (10%)
 - a. Digoxin
 - b. Furosemide
 - c. Spironolactone
 - d. Nifedipine
 - e. Tocainide
 - f. Cromolyn
 - g. Celecoxib
 - h. Rosiglitazone
 - i. Acarbose
 - j. Warfarin
5. Discuss the mechanism of action of aspirin. What is the uniqueness of aspirin amongst other NSAIDS? (10%)