

University of Mosul

College of Veterinary Medicine

Department of Physiology,

Biochemistry and Pharmacology



Competitive examination / M.Sc.

in Veterinary Pharmacology and Toxicology

Time: 3 Hours

Date: / / 2025

Choose the correct answer from the following: (Answer all the questions) (100 marks)

1- Pharmacodynamics considers:

- (A) The way in which the body affects the drug.
 (B) The effects of the drug on the body and the mode of drug action.
(C) Drug metabolism. (D) Plasma-protein binding.

2- The renal clearance of a drug (weak organic base) is favored if the drug:

- (A) Has low solubility in water. (B) Reduces renal blood flow.
 (C) Has a high degree of binding to plasma protein.
(D) Is put in the ionized form by acidifying the urine.

3- The therapeutic index of a drug is a measure of its:

- (A) Safety (B) Potency (C) Efficacy (D) Dose variability

4- Which of the following is a correct statement regarding a partial agonist?

- (A) It is a drug that is able to produce the full cell/tissue response.
 (B) It is a drug that induces a response, but the maximum response is less than the maximum response to a full agonist.
(C) It is a drug that binds to the receptor, suppressing the receptor's basal intrinsic activity.
(D) A drug that undergoes bioactivation to the active drug.

5- Which of the following represents a mechanism of antiviral action of Oseltamivir Phosphate against influenza A&B viruses.

- (A) Interference with viral cell binding.
 (B) competitively inhibits a specific neuraminidase enzyme.
(C) Inhibits the activity of the viral RNA-dependent RNA-polymerase.
(D) interfere with ergosterol synthesis.

6- Drug act as decongestant like.....

- (A) Phenylephrine (B) Morphine (C) Ibuprofen (D) Naproxen

7- When two drugs with the same effect produce an effect greater than the sum of the effects of individual drugs [$1 + 1 > 2$]; such an effect is called:

- (A) Additive effect (B) Synergism (C) Potentiation (D) Antagonism

8- Which one of the following antinematodal drugs is effective against equine bots (*Gasterophilus*)?

- (A) Fenbendazole (B) Ivermectin (C) Piperazine (D) Pyrantel

9-Absorption of oral iron preparations can be facilitated by coadministering:

- (A) Antacids (B) Tetracyclines (C) Phosphates (D) Ascorbic acid

10-Probiotics is:

- (A) These are live parasite cultures, which promote beneficial to health of the host.
(B) These are live virus cultures, which promote beneficial virus health to the host.
(C) These are live bacterial cultures, which promote beneficial microbial health to the host.
(D) Inanimate materials.

11-Which of the following sentences represents the mechanism of action of Omeprazole?

- (A) H₂-antihistamines inactivate H₂-receptors of parietal cells.
(B) Acid pump inhibitors inhibit the H⁺/K⁺- ATPase on the luminal (secretory) membrane of parietal cells and thus reduce H⁺ secretion.
(C) Acid pump stimulator inhibit the H⁺/K⁺- ATPase on the luminal (secretory) membrane of parietal cells and thus induce H⁺ secretion.
(D) Activation of H₁ receptors.

12- Ondansetron is used clinically as a

- (A) Emetics (B) Antiemetics (C) Cytoprotectants (D) Anesthetic

13-Antitussive drug like.....

- (A) Codeine (B) Aceclofenac (C) Ketamine (D) Chloramphenicol

14- Leukotriene receptor antagonists are:

- (A) potent bronchoconstrictors and trigger inflammatory responses such as edema formation.
(B) Bronchoconstrictors and inhibits trigger inflammatory responses such as edema formation.
(C) Bronchodilator and inhibits trigger inflammatory responses such as edema formation.
(D) Inhalational anesthetics.

15- The pharmacologic effects of Progesterone include.....

- (A) Hyperemia, hypertrophy, and edema during estrus.
(B) Desensitize the myometrium to oxytocin (i.e., it prevents uterine contractions during pregnancy).
(C) Contractions during pregnancy.
(D) Induction of abortion.

16- The agent used to treat tapeworm infestations is.....

- (A) Praziquantel (B) Diloxanide furoate (C) Pentamidine (D) Thiabendazole

17- Which of the following concentrations represents the isotonic concentration used in fluid therapy?

- (A) 7.2% (B) 5% (C) 0.9% (D) 0.5%

18- Which of the following represents mechanism of action of Amprolium?

- (A) Inhibiting nuclear division.
(B) Prevents coccidia from utilizing thiamine by blocking thiamine receptors.
(C) Prevents coccidia from utilizing thiamine by stimulation of thiamine receptors.
(D) Inhibit viral replication.

19- Which of the following is a common effect of muscarinic stimulant drugs?

- (A) Hypertension (B) Inhibition of sweat glands (C) Miosis (D) Mydriasis

20- Which of the following drug causes bronchoconstriction?

- (A) Atropine (B) Propranolol (C) Amphetamine (D) Naloxon

21- Which of the following represents the mechanism of antifungal action of azole?

- (A) Inhibition of cell wall synthesis (B) Inhibition of cell membrane synthesis
(C) Inhibition of ergosterol synthesis (D) Inhibition of bacterial protein synthesis

22- Alpha₁ receptors causes.....

- (A) Cardiac contraction (B) Vasodilation (C) Mydriasis (D) Miosis

23- Furosemide is

- (A) Osmotic diuretics (B) Loop diuretics (C) Carbonic anhydrase inhibitors (D) Decongestant

24- First order kinetics of the drugs is called when.....

- (A) A constant fraction of the drug is removed in per unit time.
(B) A constant amount of the drug is removed in per unit time.
(C) Total amount of the drug is removed in one hour.
(D) Total amount of the drug is removed in first passage through the kidneys.

25- Benzodiazepines belong to drugs.

- (A) Hypnotic (B) Analgesic (C) Anesthetic (D) Antipyretic

26- Strychnine antagonizes receptor in the spinal cord.

- (A) GABA (B) Glycine (C) Aspartate (D) ACh

27- Morphine acts on receptor in the CNS.

- (A) Opioid (B) Glycine (C) Aspartate (D) GABA

28- Methylxanthines derivatives cause

- (A) Stimulation of the brain (B) Inhibition of the brain (C) Bronchoconstriction (D) Miosis

29- Which of the following drugs is a centrally acting antitussive:

- (A) Dextromethorphan (B) Acetylcysteine (C) Pseudoephedrine (D) Diclofenac

- 30- The mechanism of action of flouoroquinolones through:**
- (A) Inhibiting the bacterial cell wall (B) Inhibiting the bacterial DNA gyrase
 (C) Inhibiting the bacterial cell membrane (D) Inhibiting the bacterial protein synthesis
- 31- 1st generation of H₁-antihistamines causes as a side effect.**
- (A) Anti-androgenic activity (B) Sedation (C) Diarrhea (D) Abortion
- 32- Loratidine does not cause sedation because**
- (A) It is ionized and does not cross the blood-brain barrier (B) It has short duration of action
 (C) It is high protein bound (D) It is a prodrug
- 33- most widely used analgesic drug in race horses.**
- (A) Aspirin (B) Phenylbutazone (C) Naproxen (D) Ketamine
- 34- Which of the following drugs is used for treatment of inflammatory and immune-mediated disease?**
- (A) Dexamethasone (B) Fentanyl (C) Ephedrine (D) Morphine
- 35- Which one of the following antitrepatodal drugs is most effective against immature Fasciola hepatica in cattle?**
- (A) Albendazole (B) Clorsulon (C) Praziquantel (D) Amprolium
- 36- The insecticide deltamethrin causes neurotoxicity by:**
- (A) Prolonging the opening of potassium channels (B) Prolonging the opening of sodium channels.
 (C) Prolonging the closure of sodium channels (D) Prolonging the closure of calcium channels.
- 37- Na-bicarbonate is used in the treatment of:**
- (A) Hyperkalemia (B) Acidosis (C) Azotemia (D) Alkalosis
- 38- Unintended, harmful, or undesired effects that occur after the administration of a drug, chemical, or therapeutic agent at normal doses used for treatment, diagnosis, or prevention is called:**
- (A) Adverse effects (B) Toxic effects (C) Side effects (D) Mutagenic effects
- 39- Any substance, harmful or not, that is foreign to the body is called:**
- (A) Xenobiotics (B) Pollutants (C) Antibiotic (D) Antibacterial
- 40- Pollutant contributes to the formation of acid rain through its oxidation is**
- (A) NO₂ (B) CO₂ (C) SO₂ (D) CH₃
- 41- The primary toxic action of mercury (Hg) is**
- (A) Inhibits cytochrome P450 enzymes (B) Causes oxidative stress in tissues
 (C) Inhibits SH-enzymes, leading to protein synthesis inhibition
 (D) Stimulate SH-enzymes, leading to protein synthesis inhibition

- 42- ----- competitive inhibition of alcohol dehydrogenase to prevent metabolism of ethylene glycol to toxic acidic intermediated.
- (A) Ethanol (B) Methylene pyrazol (C) Corticosteroid (D) Dexamethasone
- 43- Glycerol monoacetate proved a beneficial effect in the treatment of poisoned animal with -----
- (A) Zinc phosphide (B) Fluoroacetate (C) Warfarin (D) Organophosphate poisoning
- 44- Which of the following pollutants is not considered a true pollutant but contributes to the greenhouse effect?
- (A) O₂ (B) NO₂ (C) CO₂ (D) Hydrocarbons
- 45- What is the effect of carbon monoxide (CO) on hemoglobin?
- (A) Increases its ability to transport oxygen
 (B) Displaces oxygen, forming carboxyhemoglobin (COHb)
 (C) Causes hemoglobin to break down (D) Converts hemoglobin into methemoglobin
- 46- What treatment is used for sulfur toxicity in ruminants?
- (A) Methylene blue (B) Activated charcoal
 (C) Thiamine supplementation (D) Broad-spectrum antibiotics
- 47-Methylene blue is antidote for:
- (A) Carbaryl toxicity (B) Na- chlorates toxicity
 (C) arsenicals toxicity (D) Organophosphate poisoning
- 48-Used in the treatment of snakes bits:
- (A) Atropine sulphate (B) Barbiturate (C) Diphenhydramine (D) Penicillin
- 49-The antidote of Arsenic toxicity is:
- (A) BAL (B) activated charcoal (C) atropine sulphate (D) ketamine
- 50-The production of defects in the fetus following exposure to chemicals during gestation is called:
- (A) Teratogenic effects (B) Carcinogenic effects (C) Mutagenic effects (D) Neurotoxicity
- 51- What is the mechanism of action of penicillin?
- (A) Inhibiting bacterial protein synthesis (B) Inhibiting bacterial DNA replication
 (C) Inhibiting bacterial cell membrane functions (D) Inhibiting bacterial cell wall synthesis
- 52- Which of the following best describes a prodrug?
- (A) A drug that is excreted unchanged (B) A drug that is active in its original form
 (C) An inactive drug that becomes active after metabolism (D) A drug that binds irreversibly to enzymes
- 53- How do β -blockers reduce blood pressure?
- (A) By stimulating the parasympathetic nervous system (B) By increasing cardiac output
 (C) By decreasing sympathetic outflow and inhibiting renin release (D) By enhancing aldosterone secretion

54- Where is the nicotinic receptor site found?

- (A) Bronchial smooth muscle (B) Skeletal muscle and autonomic ganglia
(C) Vascular endothelial cells (D) Cardiac pacemaker cells

55- What is the primary mechanism for drug absorption following an intramuscular injection?

- (A) Active transport (B) Pinocytosis
(C) Facilitated diffusion (D) Passive diffusion

56- What is the effect of combining amphotericin B and flucytosine in treating cryptococcal meningitis?

- (A) Antagonistic (B) Synergistic
(C) No effect (D) Additive

57- What does drug clearance represent?

- (A) Volume of distribution divided by dose (B) Drug binding to plasma proteins
(C) Ratio of elimination rate to plasma concentration (D) Half-life of the drug

58- What is meant by the therapeutic window of a drug?

- (A) Minimum concentration to initiate absorption
(B) Concentration range that avoids toxicity and ensures efficacy
(C) Lethal dose divided by effective dose
(D) Time required to reach steady state

59- What is post-fungal effect?

- (A) Resistance after fungal exposure (B) Continued antifungal effect after drug levels decline
(C) Accumulation of drug in fatty tissues (D) Rebound fungal infection

60- Why is cytarabine limited used as an antiviral in veterinary medicine

- (A) It is too expensive (B) It causes severe side effects
(C) It is not selective enough (D) It is very selective in its antiviral activity

61- What is the mechanism of action of cephalosporins?

- (A) Inhibit bacterial protein synthesis (B) Inhibit bacterial DNA replication
(C) Disrupt bacterial membrane function (D) Inhibit bacterial cell wall synthesis

62- What is the most frequent adverse effect of NSAIDs?

- (A) Hepatic failure (B) Gastric ulcers
(C) Hypertension (D) CNS depression

63- What is the mechanism of action of xylazine?

- (A) Alpha-1 antagonist (B) Beta-2 agonist
(C) Alpha-1 agonist (D) Alpha-2 agonist

64- How does salbutamol act pharmacologically?

- (A) Alpha-1 antagonist (B) Beta-2 agonist
(C) Alpha-2 antagonist (D) Beta-1 blocker

65- Which statement best describes drug-receptor interaction?

- (A) Drugs act after dissociating from receptors (B) Drugs cannot act unless released from receptor
(C) Drugs act while bound to the receptor (D) Drugs only act once metabolized

66- Why does succinylcholine have a short duration of action in horses?

- (A) Low acetylcholinesterase levels (B) High pseudocholinesterase activity
(C) Liver metabolism (D) Renal clearance

67- What is the effect of aspirin on COX-1?

- (A) Reversible inhibition (B) Irreversible inhibition
(C) No effect (D) Competitive activation

68- How does hydrochlorothiazide help in preventing calcium oxalate bladder stones?

- (A) Increases calcium excretion (B) Decreases calcium absorption
(C) Decreases calcium excretion by enhancing reabsorption (D) Inhibits vitamin D synthesis

69- Which statement describes fentanyl's effects?

- (A) Mild analgesic and strong antitussive (B) Strong analgesic and mild antitussive
(C) Only sedative effect (D) Only causes respiratory depression

70- How does metoclopramide exert its antiemetic effect?

- (A) Stimulates histamine receptors (B) Blocks muscarinic receptors in GIT
(C) Stimulates dopaminergic receptors in CRTZ (D) Blocks dopaminergic receptors in CRTZ

71- What is imidocarb used to treat?

- (A) Toxoplasmosis (B) Babesiosis
(C) Trypanosomiasis (D) Leishmaniasis

72- What are disinfectants?

- (A) Used on living tissue to treat infection
(B) Used on non-living surfaces reduce the number of harmful microorganisms.
(C) Applied to living tissue to reduce infection risk (D) Used internally to treat infections

73- What is the drug of choice for treating hepatic encephalopathy in animals?

- (A) Neomycin (B) Metronidazole (C) Lactulose (D) Ranitidine

74- How do local anesthetics work?

- (A) Block sodium channels and prevent depolarization
(B) Block potassium channels and prevent repolarization
(C) Enhance calcium influx (D) Block serotonin receptors

75- How do phenothiazine derivatives cause dry mouth?

- (A) Activate adrenergic receptors (B) Stimulate salivary glands
(C) Block muscarinic receptors (D) Enhance dopamine release

76- What is the mechanism of action of sulfonamides?

- (A) Inhibiting bacterial DNA (B) Inhibiting folic acid synthesis
(C) Inhibiting protein synthesis (D) Inhibiting RNA polymerase

77- How does remdesivir act against coronaviruses?

- (A) Blocks viral entry (B) Inhibits reverse transcriptase
(C) Inhibits RNA-dependent RNA polymerase (D) Prevents capsid formation

78- How does digoxin exert its positive inotropic effect?

- (A) Enhances calcium channels (B) Inhibits Na⁺/K⁺ ATPase
(C) Stimulates beta-receptors (D) Blocks sodium channels

79- Why is insulin commonly administered subcutaneously?

- (A) Because it is rapidly absorbed through blood capillaries
(B) Because it is stable in the gastrointestinal tract
(C) Because its large molecular size favors absorption via lymphatic vessels
(D) Because it is not affected by digestive enzymes

80- Why are sulfonamides generally not used in dogs?

- (A) Because sulfonamides are rapidly metabolized in dogs
(B) Because dogs have a deficiency in phase I oxidation enzymes
(C) Because dogs have a problem with phase II acetylation metabolism
(D) Because sulfonamides are not absorbed in the canine gastrointestinal tract

81- The short duration of thiopental is mainly due to:

- (A) Slow metabolism (B) High water solubility
(C) Enzyme inhibition (D) Rapid redistribution from the brain

82- Metronidazole is mainly effective against:

- (A) Aerobic bacteria (B) Anaerobic bacteria
(C) Fungi (D) Viruses

83- Sub-acute toxicity refers to:

- (A) single exposure resulting in immediate death
(B) Repeated exposure over more than 3 months causing chronic effects
(C) Single or multiple exposures within 1 month causing toxic effects without immediate death
(D) Exposure only to chemical agents without physical agents

84- Which statement about toxicant absorption is true?

- (A) Polar compounds are absorbed more (B) Nonpolar (lipid-soluble) compounds are absorbed more
(C) Water-soluble compounds are faster (D) Absorption is independent of polarity

85- What is the first step in treating poisoning?

- (A) Giving antidotes (B) Administering fluids
(C) Inducing vomiting (D) Removing the animal from poison source

86- Ca-EDTA is used to:

- (A) Bind lead and heavy metals (B) Reduce cholinergic symptoms
(C) Treat cyanide poisoning (D) Neutralize acids

87- What is a potential effect of exposure to ozone (O₃)?

- (A) Pulmonary fibrosis (B) Hepatic necrosis
(C) Pulmonary edema (D) Renal failure

88- What is the drug of choice for treating paracetamol (acetaminophen) toxicosis in cats?

- (A) Naloxone (B) N-acetylcysteine (NAC)
(C) Atropine (D) Vitamin K1

89- What is the primary toxic mechanism of organophosphate compounds?

- (A) DNA fragmentation (B) Acetylcholinesterase stimulation
(C) Acetylcholinesterase inhibition (D) Hepatocyte regeneration

90- What is a common source of nitrate (NO₃) intoxication in ruminants?

- (A) Contaminated hay (B) Moldy grains
(C) Contaminated water (D) Pesticide exposure

91- Which statement about poisons is correct?

- (A) Poisons are only solid substances that harm life
(B) Poisons are only biological agents
(C) Poisons are only liquids or gases that interfere with life processes
(D) Poisons can be any substance that interferes with life processes

92- Which emetic drug can be used in dogs and cats?

- (A) Ipecac (B) Activated charcoal
(C) Furosemide (D) Apomorphine

93- What is the definition of the maximum tolerable dose in toxicology?

- (A) The dose that causes immediate death in 50% of animals
(B) The highest dose that an organism can receive without showing significant harmful effects
(C) The smallest dose that produces any toxic effect
(D) The average dose used for therapeutic treatment

94- What is the difference between toxicity and toxicosis?

- (A) Toxicity refers to the exposure, while toxicosis refers to prevention
(B) Toxicity is the degree of harmful potential, while toxicosis is the actual condition resulting from exposure
(C) Toxicity is always reversible, toxicosis is always fatal
(D) Toxicity describes a disease, toxicosis describes a treatment method

95- What is the hallmark clinical sign of iron toxicosis in animals?

- (A) Seizures (B) Blue-green saliva
(C) Vomiting and gastrointestinal ulceration (D) Bradycardia

96- What is the most appropriate antidote for vitamin D (cholecalciferol) toxicosis?

- (A) Vitamin K1 (B) N-acetylcysteine
(C) Calcitonin (D) Atropine

97- What is the characteristic lesion seen in chronic copper toxicosis in sheep?

- (A) Renal mineralization (B) Hepatic necrosis with hemolysis
(C) Pulmonary fibrosis (D) Gastric ulcers

98- What is the specific chelator used to treat iron poisoning?

- (A) Dimercaprol (BAL) (B) EDTA
(C) Deferoxamine (D) Atropine

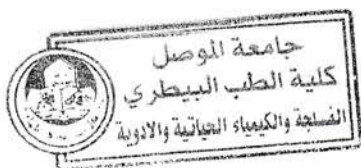
99- What is the most appropriate treatment for deltamethrin toxicity in sheep?

- (A) Activated charcoal and diazepam (B) Symptomatic treatment with diazepam and supportive care
(C) Calcium borogluconate (D) Atropine and pralidoxime

100- What is a common toxic effect of florfenicol in sheep when overdosed or used improperly?

- (A) Hepatic necrosis and blindness (B) Anorexia, diarrhea, and bone marrow suppression
(C) Neurotoxicity and seizures (D) Severe dehydration and kidney failure

GOOD LUCK



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