

Paper:

*pharmacology*

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**Q 1 (A). What does drug interactions mean and enumerate its various types?**

**Drug Interaction**
Drug interactions occur when the effect of a drug is altered by the coadministration of any of the following:

• Another drug

• Food

• Drink.

The outcome of this is as follows:

• Frequently clinically insignificant

• Sometimes beneficial

• Occasionally potentially harmful.

**Mechanisms of drug interactions**

Interactions can be caused by pharmacokinetic mechanisms (i.e. the handling of the drug in the body is affected) or pharmacodynamic mechanisms

(i.e. related to the pharmacology of the drug). Sometimes the interaction

can be caused by more than one mechanism, although usually one mechanism is more significant. The majority of interactions are caused by the following mechanisms.

**Types of Drug Interactions**
**Drug-drug**

* The probability of interactions increases with the number of drugs taken.
* Evaluating drug-drug interactions is very important during drug development.
* Drug interactions occur on pharmacodynamic pharmacokinetic levels

**Drug-disease**

Drug- Disease condition interactions may occur when an existing medical condition makes certain drugs potentially harmful.

For example, if you have high blood pressure you could experience an unwanted reaction if you take a nasal decongestant.

**Drug-herbal**

E.g. herbs traditionally used to decrease glucose concentrations in diabetes1 could theoretically precipitate hypoglycemia taken in combination with conventional dreads.

**Drug-alcohol**

**Q 1 (B). Write down a detail note on pharmacodynamic drug interaction.**

**Definition**

interaction that one drug may cause changes in another drug action, effect or response without PK alteration Pharmacodynamic interaction could result in either

* Additive effect
* Synergistic effect
* Antagonistic effect

Pharmacodynamic interaction can happen at these levels

* Level of drug action
* Level of drug effect
* Level of drug response
* The desired interactions can improve the therapeutic effect.
* for example, sedatives can potentiate each other
* When the effect of one drug is impeded by another, the effects of these drugs are antagonistic undesired (Adverse) Effects.
* Interactions of nonsteroidal anti-inflammatory drugs (NSAIDs) are demonstrated as an example of pharmacodynamic interactions.

**Q2. (A) Differentiate between hypoglycemic and hyperglycemic agents with examples**.

**Glycemia**

Glycemia is the presence of sugar glucose in blood.

**Hyperglycemic**

Hyperglycemic are agents that increases glucose level in the blood.

**E.g**. Alcohols, sugar drinks, carbonated beau rages etc.

**Hypoglycemics**

Hypoglycemics refers to the agents that decreases glucose level in the blood.

**E.g.** To controlling blood glucose level of diabetes.

**Q2 (b). What is emesis and antiemetic drugs, give examples**

**Answer.**

**Emesis.**

* Is a protective mechanism which serves to eliminate harmful substances from the stomach and duodenum
* Occurs due to stimulation of the emetic center situated in the medulla oblongata
* Multiple pathways can elicit vomiting
* CTZ and NTS are the most important relay areas for afferent impulses arising from GIT, throat and other viscera
* CTZ is also accessible to blood borne drugs, mediators, hormones, toxins etc.

**Antiemetic**

Antiemetic drugs are types of drugs that helps to relieve symptoms of nausea or vomiting.

**e.g.** Diphenhydramine, dimenhydrinate, Hydrochlorothiazide etc.

**Q 2(c). What kind of drugs are used for cough and sputum, give examples**

**Antihistamine:**

Chlorpheniramine, Diphenhydramine and Promethazine

MOA: Sedative and anticholinergic

Useful in allergic cough

**Bronchodilators:**

Bronchospasm can induce cough and constriction

Hyperactivity of Bronchial smooth muscles

Bronchodilators —relieves cough and improves clearance during cough

**Antitussives**

(Cough Centre suppressants) Opioids Codeine,

Pholcodine. Nonopioids Noscapine, Dextromethorphan

**Q3. (A) Enumerate different targets for antibiotics**

Many targets have been identified in bacteria through which antibiotics act and either kill or inhibits bacterial growth. These targets include cell wall of bacteria, protein synthesis, or various enzymes for DNA or RNA replication.

1. Cell wall synthesis inhibitors

**i.e**. Penicillin’s and cephalosporins.

2. Protein synthesis inhibitors

**i.e.,** Macrolides, tetracyclines, aminoglycosides and Fluroquinolones

**Q3 (B) Explain viral replication process in detail**

 Viral replication is the process by which a virus make its own copies using the biosynthetic machinery of host.

**Adsorption.** The virus attaches or adsorbs to the surface of the host cell most virus ate attracted to the host cell because of the interaction between proteins on the outer surface of the virus and receptor like protein the host cell membrane.

**Penetration and uncoating.** The virus enters the host cell either by passing directly through the cell membrane.

**Bio synthesis.** When viral genetic material is released within the host cell virus takes control of cell molecule protein maturation and release the component of the virus genetic core and surrounding shell into mature viruses from the host cell.

**Q4 (A) Classify antihypertensive drugs with example**

**1.Diuretics:**

* Thiazides: Hydrochlorothiazide, Chlorthalidone, Indapamide
* High ceiling: Furosemide
* K+ sparing: Spironolactone Triamterene, Amiloride

**2. Angiotensin-converting Enzyme (ACE) inhibitors:**

Captopril, Lisinopril, Enalapril, Ramipril, Eosinophil

**3. Angiotensin (ATT receptor) blockers:**

Losartan, Candesartan, Valsartan. Telmisartan

**4. Direct renin inhibitor**

Aliskiren

5. **Calcium Channel Blockers (CCB):**

Verapamil, Diltiazem. Nifedipine. Amlodipine.

6. B-**adrenergic blockers:**

Non selective: Propranolol

Cardio selective: Metoprolol, atenolol

**7. B and o- adrenergic blockers:**

Labetalol, carvedilol

**8. a-adrenergic blockers:**

Prazosin: terazosin. doxazosin

phenoxybenzamine, phentolamine

9. **Centrally acting**:

Clonidine, methyldopa

**Example.**

Captopril, enalapril, lisinopril, ramipril

**Q 4 (B). What are the causes and drug therapy of various kinds of angina pectoris?**

**Answer.**

Angina pectoris is the medical term for chest pain or discomfort due to coronary heart disease it occurs when the heart muscles does not get much food as it needs it usually happens because one or more of the hearts arteries I'd narrowed or blocked ischemia its symptom that is in the circumstances indicates chest pain arising from the heart.

**Q5 (A) Differentiate between general and local anesthetics, explain various stages of general anesthesia.**

1. **General anesthesia.** It is a state characterized by the unconsciousness analgesia amnesia skeletal muscles relaxation and loss of reflexes.
2. **Local anesthesia.** It is the conditions that results when sensory transmission from a local area of the body to CNS is blocked is local anesthesia.

**Stages.**

1. Analgesia. The patient has decreased awareness of pain.

2. Disinhibition excitement. The patients appear to be delirious and excited amnesia occur.

3. Surgical anesthesia. The patients are unconscious and has no pain reflexes respiration.

4. Medullary depression. The patient develops serve respiratory and cardiovascular depression that requires mechanical and pharmacologic support.

**Q 5 (B). Write down the mechanism of action of narcotic and non-narcotic analgesics**

Mechanisms of action all opioid receptors are G proteins flirting is a centrally acting non opioid to analgesic that is strong narcotic analgesic which induce tolerance and drug dependence such as morphine concentration failed to note any pain some are given by the injection or iv before during or after a surgical procedure opioid drugs typified by morphine produce their pharmacological actions including analgesic tolerance and hedonic.