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**Diploma in Pharmacy 1<sup>st</sup> Year**  
**Pharmaceutical Chemistry**  
**Important Questions**  
**Chapter 12 : Antibiotics**

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# Chapter 12

## Antibiotics

### IMPORTANT Questions

#### Q1. What are the Antibiotics.

Ans.

#### ANTIBIOTICS

- The word antibiotic was derived from the word antibiosis which means against life. Historically, antibiotics were believed to be organic compounds produced by a microorganism toxic other microorganisms.
- Due to this belief, an antibiotic was initially defined as a substance produced by a microorganism, which can prevent the growth of, or are fatal to other microorganisms even at low concentrations But this definition has been modified at the present time for including antimicrobials produced by synthetic means either partially or wholly.
- Antibiotics can either kill other bacteria or inhibit their growth.
- Those antibiotics which kill bacteria are termed as bactericidal and those which inhibit bacterial growth are termed bacteriostatic.
- Even though antibiotics are referred to as antibacterial agents, still they are differentiated as antibacterials; antifungals, and antivirals to indicate the type of microorganisms against which they act.

#### Q2. Write the detail note on penicillin G, Amoxicillin.

Ans.

#### Penicillin G (Benzyl Penicillin)

- Benzylpenicillin a narrow spectrum natural penicillin antibiotic. It is used treating infections caused by susceptible bacteria
- It shows poor oral absorption, thus administered intravenously or intramuscularly.

#### Uses

- Penicillin G injection is used to treat and prevent certain infections caused by bacteria. Penicillin G injection is in a class of medications called penicillins.

#### Stability and Storage

- ★ Should be store at room Temperature

#### Types of Formulation

- Injection Powder, Solutions

#### Popular Brand

- Pfizerpen

#### Amoxicillin

- Amoxicillin is a penicillin derivative used to treat infections produced gram-positive bacteria, particularly in the upper respiratory tract infections caused by streptococcal bacteria

## Uses

- It is a bacteria fighting penicillin antibiotic.
- It is used for a variety of bacterial infections, including tonsillitis, bronchitis, pneumonia, infections of the ear, nose, throat, skin, and urinary tract.

## Stability and Storage Conditions

- Capsules and pills should be kept at room temperature, away from heat and moisture (not in the bathroom).

## Types of Formulations

- ★ Suspensions, Tablets

## Popular Brand Names

- ♦ Amoxil, Trimox, Maxatag

## Q3. What are the tetracyclines write the two examples.

**Ans.**

### TETRACYCLINES

- Tetracycline is a potent, broad-spectrum antibacterial agent with activity against a host of gram-positive and gram-negative aerobic and anaerobic bacteria.
- Therefore, they are the drugs of choice or well-accepted alternatives for various infectious diseases.
- They are also used in the treatment of sexually transmitted and Gonococcal diseases, urinary tract infections, bronchitis, and sinusitis. Most of the marketed tetracyclines (tetracycline, chlortetracycline, oxytetracycline, and demeclocycline) occur naturally and are obtained by the fermentation of *Streptomyces* spp. broths.
- The duration of antibacterial action of semi-synthetic tetracyclines (methacycline, daxycycline, and minocycline) is longer.
- They also have a similar profile in terms of antibacterial potency.

## Examples

- ★ Doxycycline and Minocycline.

## Q4. What are the Macrolide write the two example .

**Ans.**

### MACROLIDE

- Macrolides are compounds with a macrocyclic lactone ring (containing 14 or 16 atoms) with attached deoxy sugars.
- Erythromycin is the prototype drug which was obtained in 1952 from *Streptomyces erythraeus*.
- Macrolides are orally administered, but can be taken via parenteral route. They were used to treat pharyngitis and pneumonia caused by *Streptococcus* in individuals allergic to penicillin.
- They are used in pneumonia caused by *Mycoplasma* species or *Legionella pneumophila* (organism causing Legionnaire disease).
- They are also used in pharyngeal carriers of *Corynebacterium diphtheriae* (bacteria causing diphtheria).

## Examples

- ♦ Erythromycin, and Azithromycin