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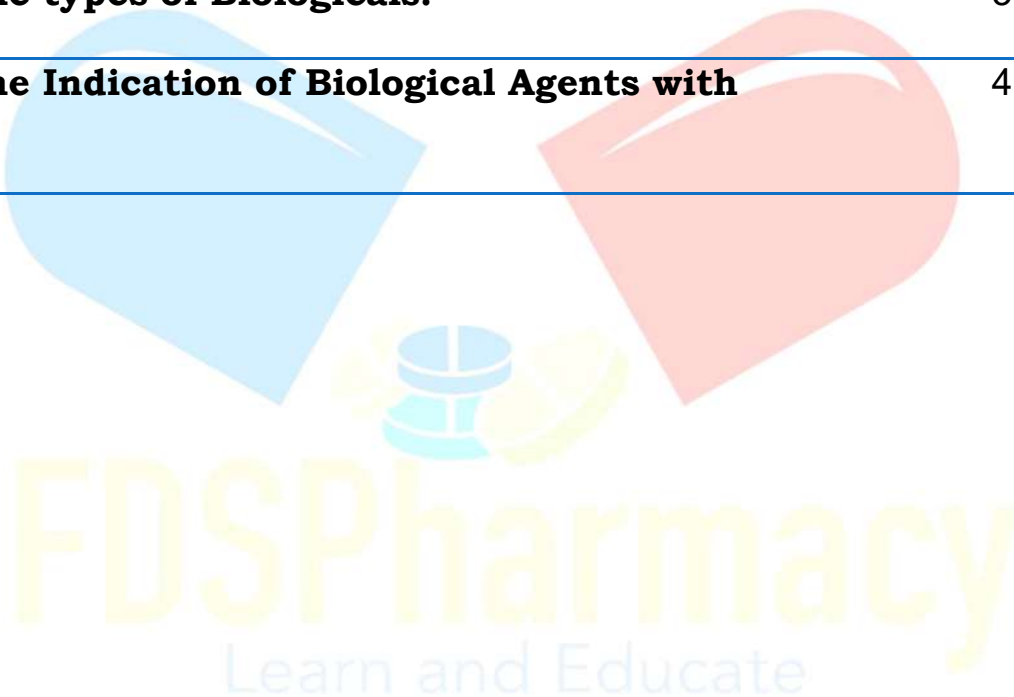
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Diploma in Pharmacy 2nd Year
Pharmacology
Important Questions
Chapter 13 : Biologicals

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Chapter 13

Biologicals

IMPORTANT Questions

Q1. Describe the term Biologicals.

Ans.

Biologicals

- Biological , biopharmaceuticals or biologics are substances (medicinal products) made from a living organism or contain components of living organism . e.g. Vaccines , blood , hormones etc.
- Biologicals include a wide variety of products derived from human , animal or microorganism by using biotechnology.
- Biological products may contain proteins that control the function of other proteins , cellular process and gene which regulate the production of vital proteins.
- Biologics may content modified human hormones or cells which produce the substances that suppress or activate the immune system.

Q2. Write the types of Biologicals.

Ans.

Types of Biologicals

- ◆ **Proteins** : Examples include insulin for diabetes and erythropoietin for anemia.
- ◆ **Vaccines** : These are used to prevent the spread of infectious diseases.
- ◆ **Gene therapies** : These involve the introduction of a functional gene into a patient's cells to treat genetic disorders.
- ◆ **Monoclonal antibodies** : These are laboratory-made molecules that mimic the immune system's ability to fight off harmful substances.
- ◆ **Cell therapies** : These involve the transplantation of living cells into a patient's body to treat diseases or conditions.
- ◆ **Toxoids** : These are toxins that have been made harmless and used as vaccines against certain bacterial diseases.
- ◆ **Fusion proteins** : These are made by combining two different proteins to treat diseases such as arthritis and cancer.
- ◆ **Recombinant DNA products** : These are produced using genetic engineering techniques and used to treat a range of conditions, including hemophilia and growth hormone deficiencies.

Q3. Write the Indication of Biological Agents with examples?

Ans.

Indications of biological agents with examples:

1. Cancer:

- Monoclonal antibodies such as trastuzumab (Herceptin) are used to treat breast cancer.
- Cell therapies such as chimeric antigen receptor T cell (CAR-T) therapy are used to treat certain types of blood cancers.

2. Autoimmune disorders :

- Monoclonal antibodies such as adalimumab (Humira) are used to treat rheumatoid arthritis.
- Fusion proteins such as etanercept (Enbrel) are used to treat psoriatic arthritis and ankylosing spondylitis

3. Infectious diseases :

- Vaccines such as HPV vaccine and influenza vaccine are used to prevent the spread of the respective diseases.
- Monoclonal antibodies such as infliximab (Remicade) are used to treat viral infections such as hepatitis B and C

4. Hormonal deficiencies :

- Recombinant DNA products such as human growth hormone (HGH) are used to treat growth hormone deficiency.
- Insulin is used to treat diabetes.

5. Genetic disorders:

- Gene therapies such as lentiviral vector gene therapy are used to treat severe combined immunodeficiency.
- Stem cell transplantation is used to treat genetic blood disorders such as sickle cell anemia.

6. Neurological disorders :

- Monoclonal antibodies such as ocrelizumab (Ocrevus) are used to treat multiple sclerosis.

7. Inflammatory disorders :

- Fusion proteins such as infliximab (Remicade) are used to treat inflammatory bowel diseases such as Crohn's disease and ulcerative colitis.

8. Allergic conditions :

- Monoclonal antibodies such as omalizumab (Xolair) are used to treat severe asthma and allergic rhinitis.

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