W 006/095

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**Winter, 2024**

**D.Pharm 1st Year Examination, 2024**

**PHARMACEUTICAL CHEMISTRY**

**Course Code: ER20-12T**

**Full Marks – 80** **Time – 3 hours**

*The figure in the margin indicates full marks for the questions.*

A. Answer the following question: (1×20= 20 marks)

Q1. What did Paul Ehrlich conclude from his observation of certain chemical dyes affecting bacterial cells differently?

a) Bacteria have different sensitivities to chemicals.

b) Chemical dyes can cure bacterial infections.

c) Some bacteria are resistant to chemical dyes.

d) Chemical dyes have no effect on bacterial cells.

Q2. Who coined the term "antibiotics" and discovered over 20 antibiotics in their lifetime?

a) Paul Ehrlich

b) Selman Waksman

c) Louis Pasteur

d) Alexander Fleming

Q3. Which nervous system does acetylcholine primarily function in as the chief neurotransmitter?

a) Sympathetic nervous system

b) Central nervous system

c) Parasympathetic nervous system

d) Autonomic nervous system

Q4. Which of the following is NOT a function of acetylcholine in the body?

a) Contraction of skeletal muscles

b) Constriction of blood vessels

c) Increasing heart rate

d) Inhibiting bodily secretions

Q5. Which of the following criteria is essential for an effective antibiotic?

a) Producing toxic effects on the host

b) Instability during isolation, storage, and use

c) Unsafe for consumption

d) Effectiveness against pathogens without toxicity to the host

Q6. In a titration, which substance is gradually added from a burette until the reaction with the analyte is complete?

a) Titate

b) Titrant

c) Titrate

d) Indicator



Q7. What is the term for the process of adding a standardized solution to a known volume of a sample to determine its concentration?

a) Titrant

b) Titrate

c) Indicator

d) Analyte

Q8. What colour indicates the presence of iron(III) ions in the solution during the limit test of iron using potassium thiocyanate as the indicator?

a) Yellow

b) Red

c) Blue

d) Colourless

Q9. Which common reagent is added to a solution containing chloride ions during the limit test of chlorine to precipitate the chloride ions as silver chloride?

a) Sodium hydroxide

b) Barium chloride

c) Silver nitrate

d) Potassium dichromate

Q10. In the limit test of chlorine, what is the characteristic colour of the precipitate formed when silver nitrate is added to the solution containing chloride ions?

a) White

b) Yellow

c) Red

d) Brown



Q11. In titration using a phenolphthalein indicator, at what pH range does the colour change occur, indicating the end point of the titration?

a) pH 1 to 3

b) pH 4 to 6

c) pH 7 to 9

d) pH 10 to 12

Q12. Which division of the autonomic nervous system is responsible for conserving energy and promoting relaxation?

a) Sympathetic nervous system

b) Parasympathetic nervous system

c) Central nervous system

d) Peripheral nervous system

Q13. What is the primary function of the sympathetic nervous system?

a) Slowing the heart rate

b) Increasing intestinal activity

c) Promoting relaxation

d) Preparing the body for "fight or flight" response

Q14. Which of the following is the primary function of an acidifying agent in pharmaceutical formulations?

a) Enhancing flavour

b) Increasing solubility

c) Adjusting pH

d) Improving stability

Q15. In the food industry, what role does an acidifying agent typically play?

a) Extending shelf life

b) Reducing acidity

c) Enhancing colour

d) Preserving freshness



Q16. Which of the following is the primary function of antacids?

a) Increasing stomach acid production

b) Reducing stomach acid production

c) Neutralizing stomach acid

d) Promoting digestion

Q17. What is a common active ingredient found in antacid medications?

a) Aspirin

b) Ibuprofen

c) Calcium carbonate

d) Acetaminophen

Q18. Which of the following is a primary characteristic of general anaesthesia?

a) It affects a specific area of the body.

b) It causes loss of consciousness and sensation throughout the entire body.

c) It is typically administered through local injection.

d) It has no impact on consciousness.

Q19. What is the main difference between general anaesthesia and local anaesthesia?

a) General anaesthesia affects the entire body, while local anaesthesia only affects a specific area.

b) Local anaesthesia is administered orally, while general anaesthesia is injected intravenously.

c) General anaesthesia is reversible, while local anaesthesia is not.

d) General anaesthesia is used for minor procedures, while local anaesthesia is used for major surgeries.

Q20. What is the primary therapeutic effect of cardiac glycosides in the treatment of heart conditions?

a) Lowering blood pressure

b) Decreasing heart rate

c) Increasing blood cholesterol levels

d) Strengthening cardiac contractions



B. Answer any 10 out of 11 of the following questions: (3×10=30 marks, word limit: 400 words)

Q1. Define pharmacopeia with examples.
Q2. Analyze the scopes and objectives of pharmaceutical chemistry.
Q3. Illustrate about sources of impurities.
Q4. Summarize the effects of impurities in the pharmaceutical industry.
Q5. Outline the theory involved in the limit test of Iron.
Q6. Contrast the difference between Molarity and Normality.
Q7. Illustrate the role of Iron in the human body.
Q8. Write a note on dental products.
Q9. Distinguish the classification of GIT agents.
Q10. Write a note on haematinics.
Q11. Outline the theory involved in the limit test of chlorine.

C. Answer any 6 out of 7 of the following questions: (5×6=30 marks, word limit: 700 words)

Q1. Write a note on antibiotics and describe their various classification with examples.
Q2. Write a note on steroidal drugs and its classification.
Q3. Describe the mechanism of actions of acidifying agents.
Q4. Evaluate the role of general anaesthesia and its importance in medical science.
Q5. Differentiate between general anaesthesia and local anaesthesia.
Q6. Write a note on cardiac glycoside.
Q7. Write a note on cholinesterase inhibitors with examples.