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Girijananda Chowdhury University
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2024

B.Pharm. 6th Semester (Regular) End-Term Examination

PHARMACOLOGY – III – THEORY

(New Regulation w.e.f. 2017-18)

Full Marks – 75 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Multiple Choice Questions (MCQ) (Answer *All* questions) : (20 × 1 = 20)

(i) Which of the following medications is a respiratory stimulant used in the management of central sleep apnea and opioid-induced respiratory depression?

(a) Albuterol (b) Doxapram
(c) Theophylline (d) Montelukast

(ii) Which among the following medications is commonly used as an expectorant to help loosen mucus in patients with productive cough?

(a) Dextromethorphan (b) Guaifenesin
(c) Codeine (d) Diphenhydramine

(iii) Which of the following medications is commonly used as a long-acting beta-agonist in the management of asthma?

(a) Albuterol
(b) Montelukast
(c) Formoterol
(d) Beclomethasone

(iv) Which of the following drugs is commonly used as a proton pump inhibitor (PPI) in treating peptic ulcers?

(a) Famotidine (b) Sucralfate
(c) Omeprazole (d) Loperamide

[Turn over

(v) Which of the following medications is an osmotic laxative used to treat constipation?

(a) Loperamide (b) Psyllium

(c) Ondansetron (d) Metoclopramide

(vi) Which of the following medications is a centrally-acting appetite suppressant used for weight management?

(a) Mirtazapine (b) Megestrol

(c) Orlistat (d) Phentermine

(vii) Sulfonamides exert their antimicrobial effect by

(a) Inhibiting cell wall synthesis

(b) Inhibiting DNA gyrase

(c) Inhibiting folic acid synthesis

(d) Inhibiting protein synthesis

(viii) Which of the following is a fundamental principle of chemotherapy?

(a) Targeting specific genetic mutations

(b) Enhancing the body's immune response

(c) Killing rapidly dividing cells

(d) Suppressing inflammation

(ix) Which of the following anthelmintic drugs works by inhibiting microtubule formation in helminths?

(a) Praziquantel (b) Mebendazole

(c) Ivermectin (d) Albendazole

(x) Artemisinin-based combination therapies (ACTS) are commonly used for the treatment of malaria. Which of the following drugs is often combined with artemisinin derivatives in ACTs?

(a) Quinine (b) Chloroquine

(c) Primaquine (d) Lumefantrine

(xi) Which of the following antifungal agents acts by inhibiting ergosterol synthesis?

(a) Fluconazole (b) Amphotericin B

(c) Griseofulvin (d) Caspofungin

(xii) Which drugs act as an immunostimulant by enhancing the activity of natural killer cells and cytotoxic T cells?

(a) Interferon-alpha (b) Cyclosporine

(c) Filgrastim (d) Levamisole

(xiii) Which of the following classes of chemotherapeutic agents primarily inhibits DNA synthesis in rapidly dividing cancer cells?

(a) Alkylating agents

(b) Antimetabolites

(c) Topoisomerase inhibitors

(d) Mitotic inhibitors

(xiv) Which of the following is NOT a clinical symptom of morphine poisoning?

(a) Pinpoint pupils

(b) Respiratory depression

(c) Hypertension

(d) Sedation

(xv) What is the first step in the general principles of treating poisoning?

(a) Administering an antidote

(b) Initiating supportive care

(c) Inducing vomiting

(d) Performing gastric lavage

(xvi) Which term refers to the ability of a substance to cause heritable changes in the DNA sequence of cells?

(a) Genotoxicity (b) Carcinogenicity

(c) Teratogenicity (d) Mutagenicity

(xvii) Which type of toxicity typically occurs after a single exposure to a substance and manifests within 24 hours?

(a) Acute toxicity (b) Subacute toxicity

(c) Chronic toxicity (d) None of the above

(xviii) What term describes the internal mechanism that regulates the body's daily physiological and behavioral processes?

(a) Circadian rhythm (b) Biological clock

(c) Chronobiology (d) Diurnal cycle

(xix) Which term refers to a regular recurrence of events or phenomena?

(a) Rhythm (b) Cycle

(c) Periodicity (d) Frequency

(xx) Which sexually transmitted disease is caused by the bacterium *Neisseria gonorthoeae*?

(a) Syphilis (b) Chlamydia

(c) Gonorrhea (d) HIV/AIDS

2. Short answer (Answer any *Seven*) (7 × 5 = 35)

(a) Describe the mechanism of action of Isoniazid in the treatment of tuberculosis. How does resistance to isoniazid develop, and what strategies can be employed to overcome it?

(b) Explain the mode of action of Dapsone in the treatment of leprosy. Discuss the mechanisms of action (any one), clinical applications, and potential side effects of antiviral agents.

(c) Describe the pharmacological properties of Sulfonamides and Cotrimoxazole. Write a note on appetite stimulants and suppressants.

(d) Classify anti–ulcer with suitable examples. Write a short note on the drugs used in the management of COPD.

(e) What are immunostimulants and how do they function to enhance the immune response in the body? Provide examples of commonly used immunostimulant drugs and discuss their clinical applications.

(f) Describe the characteristics and mechanisms of protein drugs, including monoclonal antibodies. How are these drugs targeted to specific antigens and what role do they play in modern medicine?

(g) Explain the terms genotoxicity, carcinogenicity, teratogenicity and mutagenicity in the field of toxicology. Give examples of substances associated with each of these toxicological properties.

(h) Describe the clinical symptoms, mechanisms and immediate management of organophosphosphorus and morphine poisoning.

(i) Discuss the classification of drugs, mechanisms of action, spectrum of activity, clinical applications adverse effects and resistance mechanisms for the following classes of antibiotics: Penicillin and Tetracyclines.

3. Long answers (Answer any *Two*) (2 × 10 = 20)

(a) (i) Explain the mechanisms of action (of anyone) and clinical applications of anti–amoebic agents in treating parasitic infections. (5)

(ii) Discuss the general principles of chemotherapy. (5)

(b) Classify anti–emetic agents with examples. Explain the pharmacology of any anti–emetic agents. (4+6)

(c) Classify anti–cancer agents based on their mechanisms of action and elaborate on the pharmacological applications and potential adverse effects of cytotoxic agents. (5+5)