2106000102020101
Examination February-March 2024
SECOND MBBS
PHARMACOLOGY (PAPER - I) - LEVEL 2

[Time: Three Hours] **[Max. Marks: 100]**

Instructions:
1. **Fill up strictly the following details on your answer book**
   a) Name of the Examination : **SECOND MBBS**
   b) Name of the Subject : **PHARMACOLOGY (PAPER - I) - LEVEL 2**
   c) Subject Code No : **2106000102020101**
2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.
5. Answers should be precise and to the point.
6. Give examples and figures if needed.
7. First 20 mins have been allotted to solve multiple choice questions.

Seat No:

Student's Signature

SECTION – I

Q.1 Multiple choice questions (MCQs) **1*20=20**
(Each question carries one mark and there is no negative marking.)

1. Alkaline diuresis is done for treatment of poisoning due to:
   a. Morphine b. Amphetamine
   c. Phenobarbitone d. Atropine

2. Which of the following statements best describes an 'orphan drug'?
   a. It is a drug which acts on orphanin receptors
   b. It is a very cheap drug
   c. It is a drug which has no therapeutic use
   d. It is a drug required for treatment or prevention of a rare disease

3. A newborn baby was born with phocomelia. It results due to which drug taken by mother during pregnancy?
   a. Tetracycline b. Thalidomide
   c. Alcohol d. Phenytoin

4. In which of the following phases of clinical trials, healthy normal human volunteers participate:
   a. Phase-I
   b. Phase-II
   c. Phase-II
   d. Phase-IV

5. Major neurotransmitter released at ganglion of the sympathetic division of the autonomic nervous system is:
   a. Adrenaline
   b. Noradrenaline
   c. Dopamine
   d. Acetylcholine

6. Botulinum toxin produces skeletal muscle paralysis by
   a. Enhancing release of norepinephrine
   b. Inhibiting release of acetylcholine
   c. Direct damage to nerve endings
   d. Producing hemolysis

7. A patient was given pilocarpine. All of the following can be the features seen in him except:
   a. Sweating
   b. Salivation
   c. Miosis
   d. Cycloplegia

8. Exogenous adrenaline is metabolized by:
   a. AChE
   b. COMT
   c. Decarboxylase
   d. Acetyl transferase

9. Most common dose limiting adverse effect of colchicine is:
   a. Sedation
   b. Kidney damage
   c. Diarrhea
   d. Muscle paralysis

10. Which of the following is a DMARD?
   a. Deferoxamine
   b. Penicillamine
   c. Succimer
   d. Dimercaprol

11. Which prostaglandin helps in cervical ripening?
   a. PGI2
   b. PGF2
   c. PGE2
   d. PGD2

12. Which of the following compounds acts as a benzodiazepine antagonist?
    a. Flumazenil
    b. Naloxone
    c. Furazolidone
    d. Naltrexone

13. Which of the following has highest potential to cause metabolic syndrome?
    a. Clozapine
    b. Risperidone
    c. Quetiapine
    d. Aripiprazole

14. The rationale for using ethanol in methanol poisoning is that it:
    a. Antagonizes the actions of methanol
    b. Stimulates the metabolism of methanol and reduces its blood level
    c. Inhibits the metabolism of methanol and generation of toxic metabolite
    d. Replenishes the folate stores depleted by methanol

15. Antihistaminics used for motion sickness is:
    a. Cetirizine
    b. Meclizine
    c. Diphenhydramine
    d. Fexofenadine

16. Tachyphylaxis is seen after use of
    a. Tamoxifen
    b. Morphine
    c. Ephedrine
    d. Chlorpromazine

17. Omalizumab is indicated for which of the following conditions?
    a. Multiple myeloma
    b. Gout
    c. Bronchial asthma
    d. Rheumatoid arthritis

18. Time for peak plasma concentration (Tmax) indicates:
    a. The rate of elimination
    b. The rate of absorption
    c. The duration of effect
    d. The intensity of effect

19. Which of the following undergoes Hoffmann's elimination?
    a. Atracurium
    b. Pancuronium
    c. Mivacurium
    d. Vecuronium

20. Therapeutic drug monitoring is desirable for
    a. Diazepam
    b. Paracetamol
    c. Digoxin
    d. Nitrous oxide

Q.2 Answer in short [any five]: **3*5=15**

a) Enumerate parenteral routes of drug administration. Enlist the advantages of intravenous route.
b) Write a note on plasma protein binding of drugs.
c) Define therapeutic index. Explain with the help of diagram.
d) Explain the pharmacological basis for the use of prostaglandin analogues in glaucoma.
e) Classify α blockers. Why prazosin is given at bed time?
f) Explain why succinyl choline produces prolonged apnoea in some patients.

Q.3 Write answers in details [any three]: **5*3=15**

a) Discuss drug antagonism. Compare and contrast competitive and noncompetitive antagonists.
b) Enumerate various factors affecting action of a drug. Describe any three in detail.
c) Classify sympathomimetic agents. Write a note on dopamine and dobutamine.
d) Classify β blockers. Describe uses of β blockers.

Q.4 Case based questions: **10*1=10**

A 30 years old male farmer was spraying insecticides in his farm. He developed profuse sweating, lacrimation, excess salivation, labored breathing & pinpoint pupil. He was brought to emergency room. His pulse rate was 50/minute and blood pressure was 90/60 mm Hg.

a. Which may be the culprit agent? Enumerate the agents which cause actions as seen in the above case. **1+2**
b. Explain how the agent will cause the above sign and symptoms in the patient. **3**
c. Which specific antidotes will you give to this patient. Explain the pharmacological basis of use of these antidotes. **1+3**

SECTION – II

Q5 Answer in short [any five]: **3*5=15**

a) Write a note on antitussive agents.
b) Discuss briefly the importance of three different doses of aspirin in therapeutics.
c) Compare and contrast first generation antihistaminics and second generation antihistaminics.
d) Explain why adrenaline is added to local anesthetics.
e) Enumerate the uses and contraindications of morphine.
f) Describe the management of paracetamol poisoning.

Q6 Write answers in details [any three]: **5*3=15**

a) Classify drugs used in asthma. Mention pharmacotherapy for status asthamaticus.
b) Enumerate drugs used for treatment of epilepsy. Describe mechanism of action and adverse effects of Phenytoin.
c) Classify drugs used in treatment of migraine. Mention pharmacotherapy for an acute attack of migraine.
d) Classify antidepressants. Describe the toxic effects of tricyclic antidepressants.

Q7 Case based questions: **10*1=10**

➤ A 60-year-old man came to OPD of GMC Surat with progressive worsening of tremors in hand for past 1 year. He noticed that it was harder to walk. He was walking in shuffling gait, his face was expressionless, pin rolling tremor was found in his hands and cogwheel rigidity was found. He was diagnosed as a case of Parkinsons disease and was prescribed Levodopa and Carbidopa combination.

a) Why levodopa is used for treatment of parkinsonism and not dopamine in this case? **1**
b) Explain the rationale for combining carbidopa with levodopa. **3**
c) Describe the adverse effects of levodopa and carbidopa combination that you will observe at the initiation of therapy in this patient? **3**

d) After prolonged treatment with this combination (5 years) what changes in response will you see? How will you manage these changes, if needed at all? 3

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Student's Signature

SECTION – I

Q.1 Multiple choice questions. **1*20=20**

(Each question carries one mark and there is no negative marking.)

1. Mechanism of action of digoxin is:
   a. Na^+K^+ ATPase pump inhibition
   b. Na^+H^+ ATPase pump inhibition
   c. H^+K^+ ATPase pump inhibition
   d. Na^+Cl^- ATPase pump inhibition

2. Which of the following antihypertensive is NOT used in pregnancy?
   a. Methyldopa b. Nifedipine
   c. Labetalol d. Enalapril

3. Which of the following is a class III antiarrhythmic drug?
   a. Phenytoin b. Pindolol
   c. Amiodarone d. Propafenone

4. Which of the following drug causes highest increases in serum High density lipoprotein (HDL)?
   a. Lovastatin
   b. Gemfibrozil
   c. Niacin
   d. Colestipol

5. Which of the following drug is preferentially a venodilator?
   a. Hydralazine
   b. Minoxidil
   c. Nifedipine
   d. Nitroprusside

6. Captopril causes all of the following adverse reactions EXCEPT
   a. Dry cough
   b. Hypokalemia
   c. Angioedema
   d. Dysguesia

7. All of the following antiplatelet drugs are GpIIb/IIIa antagonist EXCEPT:
   a. Prasugrel
   b. Abciximab
   c. Tirofiban
   d. Eptifibatide

8. Filgrastim is used in treatment of:
   a. Anemia
   b. Neutropenia
   c. Thrombocytopenia
   d. Polycythemia

9. Which of the following antithyroid drug is relatively safer in first trimester of pregnancy?
   a. Methimazole
   b. Propylthiouracil
   c. Amiodarone
   d. Carbimazole

10. Drug used in induction of ovulation is:
   a. Clofibrate
   b. Clomiphene
   c. Clozapine
   d. Clevidipine

11. Corticosteroids are contraindicated in all of the following EXCEPT:
   a. Congestive heart failure
   b. Ileocecal tuberculosis
   c. Bronchial asthma
   d. Peptic ulcer

12. Most common toxicity of bisphosphonates used in therapy of osteoporosis is:
   a. Esophageal irritation
   b. Osteonecrosis of jaw
   c. Chalkstick fracture of femur
   d. Osteomalacia

13. Which of the following is adverse effect of Cyclophosphamide?
    a. Cardiomyopathy
    b. Neuropathy
    c. Convulsion
    d. Hemorrhagic cystitis

14. Cyclosporine inhibits proliferation of which of the following cells:
    a. T Cells
    b. B cells
    c. Both T cells & B cells
    d. NK cells

15. The persistent suppression of bacterial growth after limited exposure to some antimicrobial drug is called:
    a. Time dependent killing
    b. Concentration dependent killing
    c. Post-antibiotic effect
    d. Quorum sensing

16. Aminoglycosides can cause which of the following toxicity?
    a. Ototoxicity
    b. Nephrotoxicity
    c. Neuromuscular Junction Blockade
    d. All of the above

17. Cilastatin is given as fixed dose combination (FDC) with:
    a. Clavulanic acid
    b. Amoxycillin
    c. Piperacillin
    d. Imipenem

18. Which of the following antitubercular drug act by inhibiting mycobacterial ATP synthase?
    a. Linezolid
    b. Levofloxacin
    c. Ethambutol
    d. Bedaquiline

19. Which of the following is not an indication of Metronidazole?
    a. Neurocysticercosis
    b. Pseudomembranous colitis
    c. Giardiasis
    d. Amoebiasis

20. Ondansetron act as an antiemetic by its which of the following action?
    a. Substance P antagonism
    b. D_2 receptor antagonism
    c. 5-HT_3 receptor antagonism
    d. Cannabinoid (CB_1) receptor antagonism

Q.2 Answer in short [any five]: 3*5=15

a. Enumerate drugs used in pharmacotherapy of peptic ulcer. Describe mechanism of action of proton pump inhibitors (PPIs).
b. What is antimicrobial drug resistance? Describe mechanisms underlying antimicrobial drug resistance.
c. Elaborate two prolactin inhibitors giving their uses and adverse effects.
d. Write the mechanism of actions and adverse reactions of tetracycline.
e. Enlist drugs used in osteoporosis. Write mechanism of action and two adverse reactions of bisphosphonates.
f. What is informed consent? Explain its importance in clinical practice with an example.

Q.3 Write answers in details [any three]: 5*3=15

a. Discuss role of nitrates in angina pectoris.
b. Describe the mechanism of action and therapeutic uses of ACE inhibitors.
c. Enumerate oral iron preparation. Describe adverse effects and drug interactions of oral iron therapy.
d. Pharmaco-therapy for urinary tract infection (UTI).

Q.4 Answer the following questions based on the given case scenario: 10*1=10

A 35-year-old female patient had recurrent episodes of nose bleed accompanied by severe headache since last few days. On examination his blood pressure and pulse were 170/90 mm of Hg and 100/minute, respectively. The diagnosis is essential hypertension.

a. Write drug therapy for managing this patient. 4
b. Describe the mechanism of action and two adverse drug reactions to chosen drugs. 4
c. Describe drugs used for treatment of hypertension in pregnancy? 2

SECTION – II

Q.5 Write answers in short [any five]: 3*5=15

a. Describe advantages of Low molecular weight heparin (LMWH) over unfractionated heparin (UFH).

b. Describe the rationale of 'Boosted PI regimen' in pharmacotherapy of HIV.
c. Write a short note on low dose aspirin.
d. What is counterirritation? Describe various counterirritants used topically for relieving muscular pain.
e. Write rationale of combining aluminium hydroxide and magnesium hydroxide as antacids.
f. Describe mechanism of action of penicillin in treatment of gram-positive bacterial infection. Enumerate its clinically important adverse reactions.

Q.6 Write answers in details [any three]: **5*3=15**

a. Write a short note on thiazides.
b. Outline pharmacotherapy of hyperthyroidism.
c. Describe adverse drug reactions of corticosteroids.
d. Mention mechanism of action and uses of fluroquinolones.

Q.7 Answer the following questions based on the given case scenario: **10*1=10**

A 21-year-old lady from Orrisa presents in clinic with a history of fever, anorexia and weakness since last two days. Fever is intermittent in nature accompanied by chills & rigors. Blood smear examination showed P. falciparum. The diagnosis is P. falciparum malaria.

a. Mention suitable drug therapy for this patient. **3**
b. Explain the rationale behind artemisinin-based combination therapy (ACT). **4**
c. Enumerate two drugs used for chemoprophylaxis of malaria along with their adverse reactions. **3**

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