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EXAMINATION DECEMBER 2024
BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (SECOND YEAR)
PHARMACOLOGY (PAPER - I) (NEW) (OMR)

[Time: As Per Schedule] **[Max. Marks: 100]**

Instructions:
1. **Fill up strictly the following details on your answer book**
   a. Name of the Examination : **BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (SECOND YEAR)**
   b. Name of the Subject : **PHARMACOLOGY (PAPER - I) (NEW) (OMR)**
   c. Subject Code No : **2406000102010501**
2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

Student's Signature

SECTION: I

Q.1 MCQs **20**

1. An 'orphan drug' is:
   a) A very cheap drug
   b) A drug which has no therapeutic use
   c) A drug needed for treatment or prevention of a rare disease
   d) A drug which acts on Orphanin receptors

2. When therapeutic effects decline both below and above a narrow range of doses, a drug is said to exhibit:
   a) Ceiling effect
   b) Desensitization
   c) Therapeutic window phenomenon
   d) Nonreceptor mediated action

3. A partial agonist can antagonise the effects of a full agonist because it has:
   a) High affinity but low intrinsic activity
   b) Low affinity but high intrinsic activity
   c) No affinity and low intrinsic activity
   d) High affinity but no intrinsic activity

4. Which of the following types of drug metabolizing enzymes are inducible:
    a) Microsomal enzymes
    b) Nonmicrosomal enzymes
    c) Both microsomal and nonmicrosomal enzymes
    d) Mitochondrial enzymes

5. The plasma half-life of penicillin-G is longer in the new born because their:
    a) Plasma protein level is low
    b) Drug metabolizing enzymes are immature
    c) Glomerular filtration rate is low
    d) Tubular transport mechanisms are not well developed

6. Apraclonidine is a clonidine congener which is used:
    a) To suppress opioid withdrawal syndrome
    b) To suppress menopausal syndrome
    c) As Analgesic
    d) To reduce intraocular tension

7. Pralidoxime can reactivate cholinesterase enzyme that has been inactivated by:
    a) Carbamate anticholinesterases
    b) Organophosphate anticholinesterases
    c) Both carbamate and organophosphate anticholinesterases
    d) Reversible anticholinesterases

8. The following sympathomimetic amine has agonistic action on $\alpha 1 + \alpha 2 + \beta 1 + \beta 3$ adrenoceptors, but not on β2 receptors:
    a) Adrenaline
    b) Noradrenaline
    c) Isoprenaline
    d) Phenylephrine

9. Adrenergic β2 agonists produce muscle tremor by:
    a) Facilitating neuromuscular transmission
    b) Incomplete fusion of contractile response of individual fibres
    c) Enhanced firing of muscle spindles
    d) Both (b) and (c)

10. Labetalol differs from propranolol in that:
    a) It has additional αl blocking property
    b) It is a selective β1 blocker
    c) It does not undergo first pass metabolism
    d) All of the above

11. Succinylcholine is the preferred muscle relaxant for tracheal intubation because:
    a) It produces rapid and complete paralysis of respiratory muscles with quick recovery
    b) It does not alter heart rate or blood pressure
    c) It does not cause histamine release
    d) It does not produce postoperative muscle soreness

12. Dantrolene sodium reduces skeletal muscle tone by:
    a) Reducing acetylcholine release from motor nerve endings
    b) Suppressing spinal polysynaptic reflexes
    c) Inhibiting the generation of muscle action potential
    d) Reducing Ca2+ release from sarcoplasmic reticulum in the muscle fibre

13. Local anaesthetics block nerve conduction by:
    a) Blocking all cation channels in the neuronal membrane
    b) Hyperpolarizing the neuronal membrane
    c) Interfering with depolarization of the neuronal membrane
    d) Both (b) and (c)

14. Which of the following processes plays the major role in terminating the action of phenobarbitone:
    a) Biliary excretion
    b) Renal excretion
    c) Hepatic metabolism
    d) Redistribution

15. The primary mechanism of action of benzodiazepines is:
    a) Dopamine antagonism
    b) Adenosine antagonism
    c) Opening of neuronal chloride channels
    d) Facilitation of GABA-mediated chloride influx

16. The extrapyramidal adverse effect of antipsychotic drug therapy which does not respond to central anticholinergics is:
    a) Parkinsonism
    b) Acute muscle dystonia
    c) Rabbit syndrome
    d) Tardive dyskinesia

17. The drug that can directly release histamine from mast cells without involving antigen-antibody reaction is:
    a) Aspirin
    b) Procaine
    c) Morphine
    d) Sulfadiazine

18. Codeine is used clinically as:
    a) Analgesic
    b) Antitussive
    c) Antidiarrhoeal
    d) All of the above

19. Select the fastest acting inhaled bronchodilator:
    a) Ipratropium bromide
    b) Formoterol
    c) Salbutamol
    d) Salmeterol

20. Select the correct statement about salmeterol:
    a) It is a long acting selective β2 agonist bronchodilator
    b) It is a bronchodilator with anti-inflammatory property
    c) It is a β blocker that can be safely given to asthmatics
    d) It is an antihistaminic with mast cell stabilizing property

Q.2 Answer in short (Any five) **15**

a) Explain the pharmacological basis of (Silodosin + Dutasteride) for benign prostatic hypertrophy
b) Enlist the routes of drug elimination and describe renal route in detail
c) Write the therapeutic uses of morphine and its analogues
d) Write notes on bioavailability and factors affecting it.
e) Noncardiac uses of beta blockers
f) Uses of centrally acting muscle relaxants

Q.3 Write answers in detail [Any three] **15**

a) Explain the new drug development and mention the phases of clinical trial
b) Classify parasympatholytic agents. Mention their clinical utility
c) Compare and Contrast d-TC vs Succinyl choline (Minimum five points)
d) Describe various methods to prolong action of a drug

Q.4 Case based question: **10**

A 65 year old woman consulted her physician with the complains of bilateral drooping of eyelids, double vision, difficulty in swallowing and slurring of speech for the past two weeks. On electromyographic testing, it was found to have a marked decrementing muscle response. However, with inj edrophonium 2mg by IV route improved her symptoms

Answer the following questions:

1. Diagnose the clinical condition **2**
2. Explain the mechanism of clinical presentations **2**
3. Why inj. Edrophonium improved her symptoms? **2**
4. Name any two drugs of different class used in this condition. **2**
5. What can be the surgical treatment for this case? **2**

Q.5 **SECTION-II**

Answer in short [Any five] **15**

a) Classification of benzodiazepines according to their half-life and therapeutic uses
b) Classify the drugs used for the treatment of bronchial asthma and describe any one bronchodilator in detail.
c) Compare and contrast Benzodiazepines Vs Barbiturates (At least 5 points)
d) Write the Pharmacological basis of co-careldopa (levo-dopa+carbidopa) in parkinsonism
e) Write about adverse effects of antipsychotic agents
f) Write about the labyrinthine suppressants and their clinical utility

Q.6 Answer in detail [Any three] **15**

a) Classify the drugs used in the treatment of epilepsy and write the pharmacotherapy of status epilepticus
b) Write any four comparative features of general Vs local anesthetic agents with suitable example
c) Classify NSAIDs according to the mechanism of action; and mention the uses and side effects of Aspirin
d) Classify DMARDs. Mention the mechanism of action of leflunomide.

Q.7 Case based question **10**

Miss ABC, aged 34 years comes to you with the complaint of breathlessness and coughing. She is having history of similar episodes. On auscultation, rhonchi were heard in bilateral lungs fields. She gives history of dust exposure during cleaning of house during Diwali, which was followed by breathlessness. Her X Ray chest was normal.

Answer the following questions:

a) What can be the provisional diagnosis? **1**
b) Classify the drugs used in treatment of given condition. **4**
c) Describe mechanism of action of any two groups of drugs used in treatment of given condition. **5**

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