



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN PHARMACEUTICAL TECHNOLOGY

APM 2222: PHARMACOLOGY AND THERAPEUTICS I

SPECIAL/ SUPPLEMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **THREE** Section(s). Attempt All questions in section A and B and any two questions in section C.

Circle the correct answer in section A.

Section A

1. Parasympathomimetic drugs cause:

- a) Bronchodilation
- b) Mydriasis
- c) Bradycardia
- d) Constipation

2. The mechanism of action of indirect-acting cholinomimetic agents is:

- a) Binding to and activation of muscarinic or nicotinic receptors

b) Inhibition of the hydrolysis of endogenous acetylcholine

c) Stimulation of the action of acetylcholinesterase

d) Releasing acetylcholine from storage sites

3. Indicate a reversible cholinesterase inhibitor:

a) Isoflurophate

b) Carbochol

c) Physostigmine

d) Parathion

4. Which of the following cholinesterase inhibitors is irreversible?

a) Physostigmine

b) Edrophonium

c) Neostigmine

d) Isoflurophate

5. Sympathetic stimulation is mediated by:

a) Release of norepinephrine from nerve terminals

b) Activation of adrenoreceptors on postsynaptic sites

c) Release of epinephrine from the adrenal medulla

d) All of the above

6. Characteristics of epinephrine include all of the following EXCEPT:

a) It is synthesized into the adrenal medulla

b) It is synthesized into the nerve ending

c) It is transported in the blood to target tissues

d) It directly interacts with and activates adrenoreceptors

7. Which of the following sympathomimetics acts indirectly?

- a) Epinephrine
- b) Norepinephrine
- c) Ephedrine
- d) Methoxamine

8. Hypnotic drugs are used to treat:

- a) Psychosis
- b) Sleep disorders
- c) Narcolepsy
- d) Parkinsonian disorders

9. Hypnotic drugs should:

- a) Reduce anxiety and exert a calming effect
- b) Induce absence of sensation
- c) Produce drowsiness, encourage the onset and maintenance of sleep
- d) Prevent mood swings in patients with bipolar affective disorders

10. Which of the following chemical agents are used in the treatment of insomnia?

- a) Benzodiazepines
- b) Imidazopyridines
- c) Barbiturates
- d) All of the above

11. What kind of substances can't permeate membranes by passive diffusion?

- a) Lipid-soluble
- b) Non-ionized substances

c) Hydrophobic substances

d) Hydrophilic substances

12. A hydrophilic medicinal agent has the following property:

a) Low ability to penetrate through the cell membrane lipids

b) Penetrate through membranes by means of endocytosis

c) Easy permeation through the blood-brain barrier

d) High reabsorption in renal tubules

13. What is implied by «active transport»?

a) Transport of drugs through a membrane by means of diffusion

b) Transport without energy consumption

c) Engulf of drug by a cell membrane with a new vesicle formation

d) Transport against concentration gradient

14. What does the term “bioavailability” mean?

a) Plasma protein binding degree of substance

b) Permeability through the brain-blood barrier

c) Fraction of an uncharged drug reaching the systemic circulation following any route administration

d) Amount of a substance in urine relative to the initial dose

15. The reasons determining bioavailability are:

a) Rheological parameters of blood

b) Amount of a substance obtained orally and quantity of intakes

c) Extent of absorption and hepatic first-pass effect

d) Glomerular filtration rate

16. Pick out the appropriate alimentary route of administration when passage of drugs through liver is minimized:

- a) Oral
- b) Transdermal
- c) Rectal
- d) Intraduodenal

17. Biological barriers include all except:

- a) Renal tubules
- b) Cell membranes
- c) Capillary walls
- d) Placenta

18. What is the reason of complicated penetration of some drugs through brain-blood barrier?

- a) High lipid solubility of a drug
- b) Meningitis
- c) Absence of pores in the brain capillary endothelium
- d) High endocytosis degree in a brain capillary

19. The volume of distribution (V_d) relates:

- a) Single to a daily dose of an administrated drug
- b) An administrated dose to a body weight
- c) An uncharged drug reaching the systemic circulation
- d) The amount of a drug in the body to the concentration of a drug in plasma

20. For the calculation of the volume of distribution (V_d) one must take into account:

- a) Concentration of a substance in plasma

b) Concentration of substance in urine

c) Therapeutic width of drug action

d) A daily dose of drug

21. A physician examines a patient and in an attempt to arrive at a diagnosis, he records 'Cardiac murmurs present'. Which medical procedure has the physician performed to arrive at this finding?

A. Checking pulse & blood pressure

B. Undertaking microbiological investigations.

C. Listening to sounds heard through a stethoscope.

D. Listening to sounds produced by striking certain body parts

22. A sudden outbreak of infectious disease that spreads rapidly through the population affecting a large proportion of people is referred to as being:

A. pandemic

B. epidemic

C. sporadic

D. endemic

23. One of the following is a sign of disease. Identify.

A. A blood pressure reading

B. Numbness on extremities

C. Dizziness

D. Anorexia

24. The most appropriate way of managing difficult psychogenic headache is a combination of an analgesic and a/an -----

A. An anti-inflammatory agents

B. An antidepressants

C. Anti-migraine agents

D. Antipyretics

25. One of the following statements is true about cluster headache. Which one?

A. It is the commonest type in both women and men.

B. It results from an increased intra-ocular pressure

C. It is usually a well localized pain on the surface of the head

D. Acute episodes are managed by anti-migraine drugs e.g. 5HT agonists

26. A mother brings her child to the pharmacy where you work complaining that the child has a fever. The most appropriate action is to:

A. advise the mother that applying tepid sponging effectively manages the condition.

B. administer ibuprofen and an antibiotic

C. administer the appropriate dose of paracetamol and refer to a doctor

D. examine the patient and administer an appropriate dose of antibiotic.

27. The following are true about migraine headache except:

A. Its presentation is usually preceded by with an aura.

B. It has a throbbing or pounding pain sensation.

C. Beta-blockers & anti-epileptics may be used for prophylaxis

D. Relaxation and counseling are effective management approaches

28. What nature of headache would a patient suffering from febrile illness presenting with?

A. The pain is often described as a feeling of tight band around the head

B. Frontal pain associated with sinusitis, and nasal congestion.

C. The pain is throbbing or pounding in nature

D. It presents a sharp, penetrating pain located in or around the eye

29. Which of the following is a manifestation of acute simple inflammation except:

- A. An elevation of white blood cell count
- B. Healing results in scar formation
- C. A raised erythrocyte sedimentation rate
- D. Enlargement of the lymph nodes

30. Which of the following is a cause of productive cough?

- A. Common cold
- B. Allergic rhinitis
- C. Bronchial pneumonia
- D. Use of ACE inhibitors

31. Which of the following is likely to cause septic shock?

- A. dehydration
- B. severe haemorrhage
- C. pulmonary embolism
- D. Gram –ve bacterial infection

32. The statement below indicates those at risk of developing major depression in the community. Which statement is not correct?

- A. A family history of depression
- B. Substance abuse e.g. alcohol
- C. The male gender is a risk
- D. Having recently given birth

33. Identify a factor that is unlikely to trigger epileptic seizures.

- A. an asthmatic attack

B. alcohol consumption

C. sleep deprivation

D. emotional stress

34. What is the most common type of seizure?

A. The tonic-clonic seizure

B. The absence seizure

C. The simple seizure

D. The complex seizure

35. Identify a drug used in the management of status epilepticus.

A. Diazepam

B. Ethosuximide

C. Levodopa

D. Phenobarbitone

36. Identify the antiepileptic drug which does not induce hepatic enzymes.

A. Carbamazepine

B. Phenytoin Sodium

C. Valproate sodium

D. Phenobarbitone

37. Symptoms of Parkinson's disease include all of the following except:

A. Tremors of the hands, legs, jaw etc.

B. Stiffness and fixed posture

C. Bradykinesia and impaired balance

D. Impaired reasoning

38. The following statements are true about bipolar manic disorder except:

- A. Patient experiences episodes of depression alternating with elation
- B. Its cause has a genetic component in most patients
- C. First-line treatment is electro-convulsive therapy.
- D. Patient exhibits rapid thoughts and flight ideas

39. Which of the following is not true about management of generalized anxiety?

- A. Drugs are second line treatments
- B. Drugs used have a risk of causing dependence.
- C. Behavioral therapy is recommended
- D. Explanation and reassurance are essential in management

40. Mr SB has had recurring episodes of mental disorder for the last seven years. He visited a psychiatric unit for maintenance dose of amitriptyline tablets. Which of the following mental disorders is Mr SB suffering from?

- A. Phobic anxiety
- B. Generalized anxiety
- C. Depressive mood disorder
- D. Obsessional Compulsive Disorders

SECTION B ANSWER ALL QUESTIONS (40MARKS)

41. Explain how depolarizing muscular blockers work (4marks)

42. Explain the difference between ADRs and side effects with examples. (4marks)

43. Outline the effects of histamine release in the body. (4marks)

44. List 4 drugs that are used as pre anesthetic medication. (4marks)

45. Outline 4 factors that influence drug metabolism (4marks)

46. Explain the difference between a sign and a symptom. (4 marks)

47. Outline how fevers occur. (4 Marks)

48. List 4 causes of vomiting (4 marks)

49. Explain 2 types of headaches (4 marks)

50. List 4 body fluid samples that can be used to check diseases. (4 marks)

SECTION C ANSWER ANY TWO QUESTIONS (40MARKS)

51. Discuss 4 routes of drug administration outlining 4 advantages of each. (20marks)

52. a) Classify adrenergic and antiadrenergic and explain their side effects. 10 Marks

b) Explain drug antagonism and explain three types with suitable examples. 10 Marks

53. Discuss 10 roles of a clinical pharmacist. 20 marks

54. Outline 5 ways of educating the public about medicines. 20 Marks