



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

SPECIAL/SUPPLEMENTARY EXAMINATIONS
SECOND YEAR EXAMINATION FOR THE AWARD OF THE
DIPLOMA IN CLINICAL MEDICINE AND SURGERY
SECOND SEMESTER, 2021/2022
(JULY, 2022)

CIMS 0287: CLINICAL PHARMACOLOGY

STREAM: Y2 S2

TIME: 2 HOURS

DAY: WEDNESDAY, 8:00 – 10:00 A.M.

DATE: 20/07/2022

INSTRUCTIONS

1. Do not write anything on this question paper.

PART 1: SECTION A- SAQs [60 marks]

Answer all questions

Each question carries 10 marks

1. Write short notes on Forusemide. [10 marks]
2. Describe two drugs that are used as osmotic diuretics. [10 marks]
3. Write short notes on antipruritics. [10 marks]
4. Write short notes on hydrochlorothiazide. [10 marks]
5. Briefly discuss the cell cycle indicating the points where antineoplastic agents act. [10 marks]
6. Write short notes on mechanism of antiseptics. [10 marks]

PART 1: SECTION B – LAQs [40 marks]

Answer any two questions

Each question carries 20 marks

1. Discuss the pharmacological actions of diuretics. State five uses diuretics. [20 marks]
2. Using appropriate examples and illustrations discuss antibiotic drugs that are employed in cancer chemotherapy. [20 marks]
3. Discuss antifungals and state topical antibiotics drugs. [20 marks]

PART 2: SECTION A – MCQs[15 marks]

Answer ALL questions

Choose the most correct answer.

1. Which of the following neoplastic diseases is almost curable by chemotherapy:
 - A. Bronchogenic carcinoma
 - B. Choriocarcinoma
 - C. Malignant melanoma
 - D. Colorectal carcinoma.
2. The following does **not** apply to cancer chemotherapy:
 - A. Each treatment with a cytotoxic drug kills a constant number of malignant cells
 - B. Drugs are generally used at maximum tolerated doses
 - C. The same regimen which is palliative for a large solid tumour may be curative after surgical removal of the tumour
 - D. Combination regimens using several drugs in succession are superior to single drug used continuously
3. Select the cell cycle nonspecific antineoplastic drug:
 - A. Vincristine
 - B. Bleomycin
 - C. Methotrexate
 - D. 5-Fluorouracil
4. Mesna is administered with cyclophosphamide and ifosfamide to:
 - A. Potentiate their cytotoxic action
 - B. Retard their renal excretion
 - C. Block their emetic action
 - D. Ameliorate cystitis caused by them

5. The $\text{Na}^+\text{-Cl}^-$ symport in the early distal convoluted tubule of the kidney is inhibited by:

- A. Thiazides
- B. Metolazone
- C. Xipamide
- D. All of the above

6. Intravenous saline infusion is the treatment of choice for the following complication(s) of vigorous furosemide therapy:

- A. Dilutional hyponatremia
- B. Acute saline depletion
- C. Hypokalemia
- D. All of the above

7. Select the diuretic that can cause gynaecomastia, hirsutism and menstrual disturbance as a side effect on long-term use:

- A. Amiloride
- B. Spironolactone
- C. Metolazone
- D. Acetazolamide

8. Which of the following is most sensitive to vasopressin?

- A. Renal collecting ducts
- B. Intestinal smooth muscle
- C. Vascular smooth muscle
- D. Uterus

9. Which of the following peptides is a selective vasopressin V2 receptor agonist:

- A. Arginine vasopressin
- B. Desmopressin
- C. Lypressin
- D. Terlipressin

10. A 65-year-old patient was scheduled for surgery to remove a glioma located on his left parietal lobe. Which of the following drugs would be most appropriately given before and after surgery to prevent increased intracranial pressure?

- A.** Mannitol
- B.** Hydrochlorothiazide
- C.** Triamterene
- D.** Verapamil

11. A 70-year-old retired businessman is admitted with a history of recurrent heart failure and metabolic derangements. He has marked peripheral edema and metabolic alkalosis. Which of the following drugs is *most* appropriate for the treatment of his edema?

A Acetazolamide

B Digoxin

C Dobutamine

D Eplerenone

12. Which of the following is an important effect of chronic therapy with loop diuretics?

A Decreased urinary excretion of calcium

B Elevation of blood pressure

C Elevation of pulmonary vascular pressure

D Metabolic alkalosis

13. A graduate student is planning to make a high-altitude climb in South America while on vacation. He will not have time to acclimate slowly to altitude. A drug that is useful in preventing high-altitude sickness is

A Acetazolamide

B Amiloride

C Demeclocycline

D Desmopressin

14. Furosemide acts by inhibiting the following in the renal tubular cell:

A. $\text{Na}^+ - \text{K}^+ - 2\text{Cl}^-$ cotransporter

B. $\text{Na}^+ - \text{Cl}^-$ symporter

C. $\text{Na}^+ - \text{H}^+$ antiporter

D. $\text{Na}^+ \text{ K}^+$ ATPase

15. Diuretics acting on the ascending limb of loop of Henle are the most efficacious in promoting salt and water excretion because:

A. Maximum percentage of salt and water is reabsorbed in this segment

B. Reabsorptive capacity of the segments distal to it is limited

C. This segment is highly permeable to both salt and water

D. This segment is responsible for creating corticomedullary osmotic gradient

PART 2: SECTION B – T/Fs [75 marks]

Answer ALL questions

For each question indicate if the option is TRUE(T) or FALSE (F)

1. The following is true cancer chemotherapy:
 - (a.) Anticancer drugs increase the risk of developing leukaemias and lymphomas several years later
 - (b.) All anticancer drugs are highly emetogenic
 - (e.) Growth fraction of cancers is higher than any normal tissue of the body
 - (d.) All of the above are correct
 - (e.) None of the above is correct

2. Anticancer drugs weaken host defence by:
 - (a.) Damaging respiratory and gut epithelia
 - (b.) Inducing granulocytopenia
 - (c.) Altering resident microbial flora
 - (d.) Both 'A' and 'B' are correct
 - (e.) None of the above

3. Alkylating agents exert cytotoxic action by inducing:
 - (a.) Breakage of DNA strand
 - (b.) Cross linking of DNA strands
 - (c.) Abnormal pairing of purine and pyrimidine bases
 - (d.) Separating DNA structures
 - (e.) All of the above.

4. Methotrexate has the following attributes except:
 - (a.) It is cell cycle specific and kills cells in the S phase
 - (b.) Its toxicity primarily affects bone marrow and epithelial structures
 - (c.) Folic acid reverses its toxic effects
 - (d.) It is the drug of choice for choriocarcinoma
 - (e.) All of the above

5. The following antineoplastic drug is a mitotic inhibitor and causes metaphase arrest:
 - (a.) Busulfan
 - (b.) Vincristine
 - (c.) Cytarabine
 - (d.) Procarbazine
 - (e.) All of the above

6. The following cytotoxic drug acts by inhibiting depolymerization of tubulin and thus producing abnormal arrays of microtubules:
 - (a.) Paclitaxel
 - (b.) Vinblastine

- (c.) Etoposide
- (d.) Mitoxantrone
- (e.) None of the above

7. Which of the following are ADH antagonists?

- (a) Desmopressin
- (b) Etoposide
- (c) Colvaptan
- (d) Demeclocycline
- (e) Lithium

8. Following potassium sparing diuretic inhibits action of aldosterone

- (a) Amiloride
- (b) Triamterene
- (c) Spironolactone
- (d) Frusemide
- (e) All of the above

9. The following potassium sparing diuretic is a mineralocorticoid receptor antagonist

- (a) Amiloride
- (b) Triamterene
- (c) Spironolactone
- (d) Acetazolamide
- (e) All of the above

10. Spironolactone can be usefully combined with the following diuretics except:

- (a). Furosemide
- (b). Amiloride
- (c). Hydrochlorothiazide
- (d). Chlorthalidone
- (e). Indapamide

11. Which of the following chemotherapeutic agents is classified as an alkylating agent?

- (a) Cyclophosphamide
- (b) Etoposide
- (c) Mechlorethamine
- (d) Paclitaxel
- (e) Cyclophosphamide and mechlorethamine

12. Which of the following chemotherapy agents acts by intercalation?
- (a) Vincristine
 - (b) Paclitaxel
 - (c) Doxorubicin
 - (d) Vincristine and paclitaxel
 - (e) Topotecan
13. How do antimetabolites exert their cytotoxic effect?
- (a) Inhibiting DNA synthesis by sliding between DNA base pairs
 - (b) Inhibiting RNA synthesis by sliding between RNA base pairs
 - (c) Acting as false metabolites in the microtubules
 - (d) Acting as false substitutions in the production of nucleic acids
 - (e) Promoting microtubule assembly and stabilization
14. Which statement regarding phasespecific chemotherapeutic agents is correct? They
- (a) Are most effective in one phase of the cell cycle
 - (b) Are effective in all phases of the cell cycle
 - (c) Are only effective in G0 phase
 - (d) Include the alkylating agents
 - (e) Include the antitumor antibiotics
15. Which of the following diuretics are steroid derivatives?
- (a) Spironolactone
 - (b) Eplerenone
 - (c) mannitol
 - (d) indapamide
 - (e) All of the above