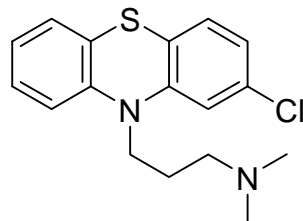


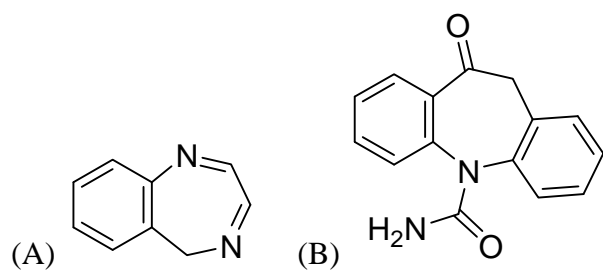
A. Single choice questions: (40%)

1. What drug could form complexes with iron ions? These complexes generate reactive oxygen species that cleave the strands of DNA. (A) Dactinomycin (B) Mitoxantrone (C) Amsacrine (D) Bleomycin
2. What drug is a naturally occurring cytotoxic alkaloid extracted from a Chinese bush? (A) Etoposide (B) Camptothecin (C) Melphalan (D) Doxorubicin
3. What drug has an indirect effect on thymidylate synthase by lowering the amount of N^5, N^{10} -methylene FH_4 cofactor required? (A) Methotrexate (B) Pentostatin (C) Gemitabine (D) Prednisone
4. What drug is an analogue of ganciclovir where a methylene group has replaced the oxygen in the acyclic 'sugar' moiety? It is metabolized to the active triphosphate in the same way as acyclovir. (A) Desciclovir (B) Penciclovir (C) Valaciclovir (D) Valganciclovir
5. What drug is an orally active diaminopyrimidine structure which has proved to be a highly selective antibacterial and antimalarial agent? It could act against dihydrofolate reductase. (A) Trimethoprim (B) Sulfamethoxazole (C) Proflavine (D) Sulfanilamide
6. What description of 5-fluorouracil is wrong? (A) acting as a prodrug for a suicide substrate (B) is converted in the body to the fluorinated analogue of 2'-deoxyuridylic acid monophosphate (C) could inhibit ribonucleotide reductase (D) is a particular useful drug for the treatment of skin cancer
7. What description of physostigmine is wrong? (A) an anticholinesterase drug (B) an alkaloid (C) still used clinically to treat glaucoma (D) the carbamate group of its structure is not essential to activity
8. What description of alkylating agents is wrong? (A) are highly nucleophilic compounds that react with electrophiles to form strong covalent bonds (B) drugs with two alkylating groups can react with a guanine on each chain and cross-link the strands (C) chlormethine was the first alkylating agent to be used medicinally (D) have poor selectivity
9. What description of cimetidine is wrong? (A) inhibits H_2 receptors (B) inhibits pentagastrin from stimulating release of gastric acid (C) the only metabolites that have been identified are due to oxidation of the sulfur link or oxidation of the ring methyl group (D) may not inhibit the cytochrome P450 enzymes in the liver
10. What drug is a proton pump inhibitor? (A) Omeprazole (B) Famotidine (C) Burimamide (D) Prednisolone
11. What structure is a 5-membered ring? (A) Pyrazine (B) Pyrrole (C) Pyrimidine (D) Piperidine



12. What is the parent nucleus for Thiiazepine ? (A) Diazepin (B) Phenothiazine (C) Benzothiazole (D)
 13. What drug is a third-generation cephalosporin? (A) Cefoxitin (B) Ceftazidime (C) Cefepime (D) Cefalexin
 14. What drug could inhibit DNA polymerases? (A) Cytarabine (B) 6-mercaptopurine (C) Dihydrotestosterone (D) Diethylstilbestrol
 15. What drug could inhibit tubulin depolymerization? (A) Phyllanthoside (B) Mitosane (C) Cryptophycins (D) Taxol
 16. What description of vancomycin is wrong? (A) a narrow-spectrum glycopeptide antibiotic (B) inhibits the production of a sugar component of the bacterial cell wall (C) is derived from a linear heptapeptide containing six aromatic residues (D) is given orally to treat gut infections due to a microorganism called *Clostridium difficile*
- B. What structures were intercalating drugs contain which can slide between the base pairs of the DNA double helix? (4%)
- C. Please explain LD_{50} and ED_{50} . (4%)
- D. Please explain the phenomenon of synergy. (4%)
- E. Please explain 'me too' drug. (4%)
- F. Please write three compounds which are thought to be neurotransmitters or neurohormones in the brain and operate as the body's natural painkillers? (6%)

G. Please number the following fused-ring systems. (6%)



H. Please describe the five main mechanisms by which antibacterial agents act. (10%)

I. Please explain the specificity and selectivity of target and its importance? (10%)

J. Please explain four phases of clinical trials? (12%)