

2022

CHEMISTRY — HONOURS

Paper : SEC-B-3

(Pharmaceuticals Chemistry)

Full Marks : 80

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Question no. 1 is compulsory and answer **any twelve** questions from the rest (**questions numbers 2-15**).

1. Answer **any twenty** questions :

1×20

- (a) Name one compound which is used in an antacid.
- (b) Name one drug which has antibacterial activity.
- (c) Write down the common name of the drug 2-(*p*-aminobenzene sulphamids) pyrimidine.
- (d) Name the parasite which causes Malaria.
- (e) Which drug is used to treat amoebic hepatitis?
- (f) What is the binding pattern of a hydroxyl group of a drug molecule, when it binds with the receptor?
- (g) If ethyl carbocation is a synthon, give a probable reagent for it.
- (h) What is the application of chloramphenicol?
- (i) Name two drugs used as antimicrobial agents.
- (j) What is a pharmacophore?
- (k) What is the use of diazepam?
- (l) Give one medicinal use of dapsone.
- (m) What is configuration of lysine?
- (n) Where does alcohol fermentation occur?
- (o) What is meant by therapeutic ratio or index?
- (p) Write down the name of one drug which is used as hyponotic as well as sedative.
- (q) What is the other name of 'structure based drug design'?
- (r) What is the use of paracetamol?
- (s) Why is fluorine considered to be an isostere of hydrogen?
- (t) What is the biological importance of glutamic acid?
- (u) What is the use of acyclovir?
- (v) What do you mean by 'Prodrug'? Give one example.

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- (w) Which category of the drugs does zidovudine belong to?
- (x) What is the application of cephalosporin?
2. (a) Define analgesics. Give one example of it.
- (b) What is the difference between analgesics and antipyretics? Give one example of antipyretic analgesic drug. 2+3
3. (a) How does rigidification of structure increase the drug activity and decrease side effect?
- (b) How does a drug bind to the aromatic ring of a binding site and how can you confirm it? 3+2
4. Provide a retrosynthetic analysis of trimethoprim. Describe the forward synthesis. 2+3
5. (a) Show the synthetic route to ibuprofen.
- (b) Give uses of the above drug. 3+2
6. (a) Write down the names and structures of any two drugs used for the problems related to central nervous system.
- (b) Explain the SAR study of any one of them. 3+2
7. (a) Discuss the biosynthesis of L-Lysine.
- (b) Write down the names of two diseases caused by the deficiency of each of vitamin B₂ and vitamin B₁₂. 3+2
8. (a) Show the schematic diagram of production of citric acid from glucose by fermentation process.
- (b) Which two drugs combination is known as co-trimoxazole? 3+2
9. (a) What are 'antifungal agents'? Give the name and structure of any one antifungal drug.
- (b) Show the synthetic pathway of that antifungal drug. 3+2
10. (a) Differentiate between 'pharmacokinetics' and 'pharmacodynamics'.
- (b) What do you mean by Vitamin-C leaching? 3+2
11. Show retrosynthesis and forward synthesis of sulphacetamide. 2+3
12. (a) Outline the general process of penicilline fermentation.
- (b) What roles does fermentation play in pharmaceutical chemistry? 3+2
13. (a) Show the synthetic route of dapsone.
- (b) Write the difference between aerobic and anaerobic fermentation. 3+2
14. Write a short note on the production of glutamic acid by fermentation process. 5
15. (a) Show the synthetic pathway of phenobarbital.
- (b) Write two uses of phenobarbital. 3+2
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