

B.Sc. 4th Semester (Honours) Examination, 2023 (CBCS)

Subject : Chemistry

Course : SEC-2

(Pharmaceutical Chemistry)

Time: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words
as far as practicable.*

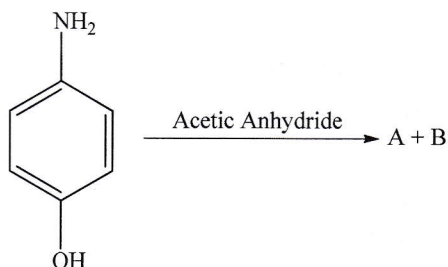
1. Answer *any five* questions from the following: 2×5=10
- (a) Name one antiviral agents and one antifungal agent.
 - (b) What do you mean by antipyretic agent? Give one example.
 - (c) What are the differences between aerobic and anaerobic fermentation?
 - (d) Name one antileprosy drug and draw its structure.
 - (e) Draw the core structure of Cephalosporin. Write one use of this drug.
 - (f) What is the chemical name of vitamin C and vitamin B2?
 - (g) How will you synthesize Paracetamol?
 - (h) What are the roles of vitamin C in our body?
2. Answer *any two* questions from the following: 5×2=10
- (a) Describe the fermentation procedure of Ethyl alcohol. Name any five potent stimulants of central nervous system. 2.5+2.5
 - (b) What is the use of Diazepam? Write down the mechanism of action of diazepam. Which type of bacteria is killed by streptomycin? 2+2+1
 - (c) What are the roles of glutamic acid in our body? What are the stages of drug development? 2.5+2.5
 - (d) How will you synthesize Aspirin and glycerol trinitrate from appropriate starting materials? Give one use of Aspirin. 2+2+1
3. Answer *any two* questions from the following: 10×2=20
- (a) (i) Show the retrosynthetic approach of the synthesis of Ibuprofen. Is paracetamol an antipyretic drug?

(ii) Name an antibacterial agent and a HIV-AIDS related drug. How HIV-AIDS related drugs works in human body? (3+1)+(1+1)+4

(b) (i) What are the roles of Lysine and vitamin B12 in our body?

(ii) Write a short note on drug design and development.

(iii) Identify A and B in the following reaction: (2.5+2.5)+3+2



(c) (i) Give a comprehensive account of Cephalosporins.

(ii) Match the following:

A		B	
1.	Antiviral agent	a.	Phenobarbital
2.	Antibiotic	b.	AZT-Zidovudine
3.	Central Nervous System agents	c.	Acyclovir
4.	HIV-AIDS related drugs	d.	Trimethoprim
5.	Antifungal agents	e.	Chloramphenicol

(iii) Name one anti-inflammatory agent and draw its structure. 3+5+2

(d) (i) Draw the chemical structure of Penicillin. How does it work? What are the main classes of antibiotics?

(ii) Directions: In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

(A) Both assertion and reason are true; reason is the correct explanation of the assertion.

(B) Both assertion and reason are true but reason is not the correct explanation.

(C) Assertion is true but the reason is false.

(D) Both assertion and reason are false.

(1) Assertion (A): Common cold cannot be treated by antiviral compounds.

Reason (R): Antiviral compounds can be used to treat viral infections.

(2) Assertion (A): Antibiotics are used to treat bacterial infections.

Reason (R): Antibiotics are chemicals released by microbes that can kill or retard the growth of other microbes. (1+3.5+2.5)+(1.5+1.5)