

**B.Sc. CHEMISTRY
THIRD SEMESTER
PHARMACEUTICAL CHEMISTRY
BSC – 306A**
(USE OMR SHEET FOR OBJECTIVE PART)

**SET
A**

Duration: 1.30hr

Full Marks: 35

Time: 15 min.

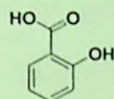
(Objective)

Marks: 10

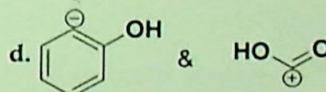
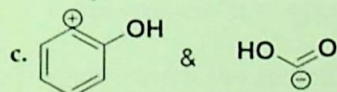
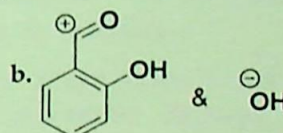
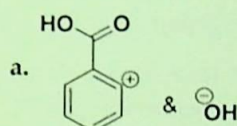
Choose the correct answer from the following:

1X10=10

- Any given drug will express its activity through
 - Enzyme inhibition
 - binding with specified cell receptors
 - Binding with DNA
 - any of these.
- The most effective pair of synthons for retrosynthetic analysis of the following molecule



, will be



- The drug which is not an antipyretic
 - Acetyl salicylic acid
 - Ibuprofen
 - Glyceryl trinitrate
 - Paracetamol
- Number of ATP molecules produced during fermentation of glucose to alcohol is
 - 6
 - 4
 - 3
 - 2
- The following reaction is a biological degradation process of glucose, which is known as
$$C_6H_{12}O_6 + 2ADP + 2 Pi + 2NAD^+ = 2CH_3COCOO^- + 2 ATP + 2 NADH + 2H_2O + 2H^+$$
 - TCA Cycle
 - glycolysis
 - Citric acid cycle
 - Kreb's cycle
- Gerhard Domagk awarded Nobel Prize (in 1939) for
 - Paracetamol
 - Prontosil
 - Ibuprofen
 - Sulfamethoxazole

7. The structure of Sulfonamide contains
- | | |
|----------------------------|----------------------------|
| a. $-\text{CO}_2\text{H}$ | b. $-\text{SO}_3\text{H}$ |
| c. $-\text{SO}_2\text{NH}$ | d. $-\text{CO}_2\text{NH}$ |
8. Which of the following drug is used for chickenpox
- | | |
|----------------|---------------------|
| a. Paracetamol | b. Acyclovir |
| c. Ibuprofen | d. Sulfamethoxazole |
9. Phenobarbital is act on
- | | |
|---------------------------|--------------------------|
| a. Circulatory System | b. Cardiovascular system |
| c. Central nervous system | d. none of these |
10. The fundamental structural unit of penicillin consists
- | | |
|--------------------------|--------------------------|
| a. β -lactum ring | b. γ -lactum ring |
| c. α -lactum ring | d. None of these |
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(PART-B : Descriptive)

Time : 1 hrs. 15 min.

Marks : 25

[Answer question no.1 & any two (2) from the rest]

1. a. Write down the structure of citric acid. Give a very short account how citric acid can be obtained by fermentation process? 1+2=3
b. What is an antibiotic? What do you mean by chemotherapeutic index? 2
2. a. Explain the terms: (i) Drugs (ii) Lead compounds (iii) agonists and antagonists. 6
b. What do you mean by retrosynthetic analysis? Give the retrosynthetic analysis of paracetamol. 4
3. a. Write down the structure of Aspirin. What for aspirin is used? Give the retrosynthetic analysis of Aspirin. Give the synthesis of Aspirin using reagent obtained from the analysis. 6
b. What do you mean by fermentation? Write down the chemistry of formation of ethanol from pyruvate, formed during fermentation from glucose. 4
4. a. Write down the structure of Prontosil. Describe its structure-activity relationship (SAR). 3
b. Write down the general synthesis procedure for Sulfonamides? Write down one use of it. 4
c. What are the criteria for an antibiotic to be an effective drug? 3
5. a. Write down the synthesis of acyclovir starting from guanine. 3
b. Describe the synthesis of Phenobarbital and mention how it works? 3
c. Write down the structure of Penicillin. Describe the production method of Penicillin. 4

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