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B.Sc./3rd Sem (H)/CHEM/23(CBCS)

2023

3rd Semester Examination

CHEMISTRY (Honours)

Paper : SEC 1-T

[CBCS]

Full Marks : 25

Time : Two Hours

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

[Analytical Clinical Biochemistry]

Group - A

1. Answer any *three* questions :  $2 \times 3 = 6$

- (a) What is Krebs cycle?
- (b) Describe briefly the double helix structure of DNA.
- (c) What is lactic acid fermentation?
- (d) Write down the structure of ATP.
- (e) Define lipoproteins.

P.T.O.

( 2 )

**Group - B**

2. Answer any *two* questions : 5×2=10

- (a) State the role of cholesterol in maintaining membrane fluidity. What do you mean by oxidative phosphorylation? 3+2
- (b) What are  $\alpha$ -helix and  $\beta$ -pleated sheets? What are the effects of pH and temperature on enzyme activity? 2+3
- (c) What are the preservatives used for urine? Give three main functions of blood. 2+3

**Group - C**

3. Answer any *one* question : 9×1=9

- (a) Write down the principle for estimation of creatinine in blood. What is the role  $Ca^{2+}$  in blood coagulation? Define coenzymes and enzyme inhibitors with examples. 4+2+3
  - (b) What do you mean by the terms 'Transcription' and 'translation'? What is the core enzyme of RNA polymerase? Name two fatty acids essential for human body. Write down the sequence of reactions involved in the preparatory phase as well as pay off phase of glycolysis. 4+1+1+3
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( 3 )

OR

[Pharmaceutical Chemistry]

Group - A

1. Answer any *three* questions : 2×3=6

- (i) Write the chemical name of Vit.-B<sub>12</sub>? Which bacteria is responsible for fermentation of Vit.-B<sub>12</sub> production?
- (ii) Synthesize paracetamol from phenol?
- (iii) What do you mean by NSAIDS? Give one example.
- (iv) What is the use of nitroglycerin as a drug? Give an example of an antiviral agent?
- (v) What do you mean by 'Lead' molecule?

Group - B

2. Answer any *two* questions : 5×2=10

- (i) Differentiate between 'Metabophore' and 'Pharmacophore'? What is sulpha drug? What are the uses of sulpha drugs?
- (ii) Synthesis Ibuprofen with proper retro-synthetic analysis?

P.T.O.

( 4 )

- (iii) What do you mean by aerobic fermentation?  
Name the yeast used in fermentation of sucrose  
to produce ethanol? How do you prepare  
phenobarbital?

**Group - C**

3. Answer any *one* question : 9×1=9

- (i) Prepare 'Dapsone' from benzene. What is the  
use of 'Dapsone'?

What is antihypertensive agent? Name for the  
same.

- (ii) Discuss each and every steps schematically for  
the production of Vit.-B<sub>12</sub> by fermentation  
method? Define antibiotics? Draw the general  
structure of 'Penicillin'?
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