



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2021

(Under CBCS Pattern)

Semester - III

Subject: CHEMISTRY

Paper: SEC-1 T & P

(Analytical Clinical Biochemistry)

Full Marks : 40 (Theory-25 + Practical-15)

Time : 2 Hours

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

The figures in the margin indicate full marks.

THEORY (Marks : 25)

Group - A

Answer any **two** questions :

5 × 2 = 10

1. (a) Differentiate between cerebroside and ganglioside.

(b) What do you mean by the terms "Transcription" and "Translation"?

2 + 3 = 5

2. State the normal range of blood urea and cholesterol in normal adult human. State the physiological significance of their elevated values. 5

3. (a) What is lactic acid fermentation? Under what physiological circumstance does it take place?

(b) State the role of cholesterol in maintaining membrane fluidity. 2 + 3 = 5

Group - B

Answer any **one** question : 15 × 1 = 15

1. (a) Elaborate the steps of TCA cycle highlighting the steps of CO₂ evolution. 6
(b) Write down the process of urine formation 5
(c) What do you mean by substrate level ATP formation and Oxidative phosphorylation? 2 + 2
2. (a) Write down the important characteristics of Watson Crock model for DNA. 4
(b) Discuss the influence of pH and temperature on enzyme activity. 4
(c) What is alpha helix and β-pleated sheet ? State with reason which one is more stable between alpha helix and β-pleated sheet ? 5
(d) Briefly discuss the role of cholesterol in our body. 2

PRACTICAL (Marks : 15)

Paper : SEC-1P

Group - A

Answer any **one** question : 10 × 1 = 10

1. Discuss the principles involved in the qualitative methods which are used to identify and characterize the different types of proteins. 10
2. Briefly discuss the materials required and principles involved for the qualitative analysis of lipids. 10

Group - B

Answer any **one** question : 1 × 5 = 5

1. Write the details of Molisch's Test for the qualitative detection of Carbohydrates.
2. Write the name of the qualitative methods which are used to identify and characterize the different types of proteins.

Or,

**Paper: SEC-1 T & P
(Pharmaceutical Chemistry)**

THEORY (Marks : 25)

Group - A

Answer any **two** questions : $5 \times 2 = 10$

1. (a) Describe batch fermentation used in the production of glutamic acid.
(b) What are the side effects of Chloramphenicol ? $3+2=5$
2. (a) Write the synthesis of paracetamol.
(b) Write the name of two micro organisms used in fermentation. $3+2=5$
3. (a) Describe the mode of action of AZT-Zidovudine.
(b) Write the synthesis of ibuprofen. $2.5+2.5=5$

Group - A

Answer any **one** question : $15 \times 1 = 15$

1. (a) Write the forward synthesis of Acyclovir.
(b) Write the medical use and mechanism of action of Acyclovir.
(c) What are the differences between Aerobic and Anaerobic fermentation?
(d) What is the chemical name of Aspirin? $5+5+4+1=15$
2. (a) Draw the flow chart diagram of Penicillin production.
(b) Write the uses of glyceryl trinitrate and dapsone.
(c) Write the procedure for the production of Vitamin B₂

PRACTICAL (Marks : 15)

Paper : SEC-1P

Group - A

Answer any *one* question :

10 × 1 = 10

1. Briefly describe the procedure involved in the preparation of Aspirin.
2. Briefly describe the procedure involved in the preparation of magnesium bisilicate.

Group - B

Answer any *one* question :

5 × 1 = 5

1. Write the reaction and reagents involved in the preparation of aspirin.
 2. Draw the structure of magnesium bisilicate and write the materials required for the preparation of magnesium bisilicate.
-