

24/6/2022 June

Roll Number ----- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	2 nd
Subject	Biochemistry
Subject Code	BP203T
Paper ID	74969
Time	3Hours
Maximum Marks	75

Instructions to Candidates: No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.

*Section A consists of Ten parts of 2 marks each (Objective Type); Attempt **ALL**.

Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO.

*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section A

(10 X 2 = 20)

1. Give very short answers to the followings (2 marks each):

i.	What is Gluconeogenesis?
ii.	Define Entropy and Enthalpy.
iii.	What is Genetic Code?
iv.	What are Lipotropic factors?
v.	Define Thiamine Pyrophosphate (TPP).
vi.	What do you mean by Elongation?
vii.	Write inhibitors of Protein synthesis.
viii.	What is Transamination?
ix.	Define Osazone formation.
x.	How glycosidic bonds are formed?

Section B

(2 X 10 = 20)

2.	What are Monosaccharides? Discuss the Glycolysis pathway and its energetics.
3.	Write a note on enzyme inhibition. Explain Michaelis-Menton plot of enzyme kinetics.
4.	Describe the reactions of Citric acid cycle and comment on its anaplerotic nature.

Section C

(7 X 5 = 35)

5.	What is Oxidative phosphorylation? Discuss its mechanism.
6.	Describe formation and utilization of ketone bodies.
7.	Explain the mechanism of Electron Transport Chain.
8.	Give structure and biochemical significance of coenzymes derived from Vitamin B ₂ .
9.	Write the structure of DNA and RNA.
10.	Discuss the biochemical causes of Jaundice.
11.	Name the four level of protein structure. Briefly explain secondary structure of protein.
12.	Classify amino acid on the basis of the side chain.
13.	Describe reactions of Urea cycle.

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(Morning)
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Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	Give sources of carbohydrate and protein.
ii.	Define concept of free energy.
iii.	Define term "Gluconeogenesis".
iv.	Give name of components of electron transport chain.
v.	What do you mean by ketoacidosis?
vi.	Give biological significance of cholesterol.
vii.	Define terms "hypercholesterolemia" and "atherosclerosis".
viii.	Give biological significance of dopamine and noradrenaline.
ix.	What do you mean by genetic code?
x.	Give examples and functions of coenzymes.

Section- B (2X10=20)

2.	Discuss pathway, energetics and biological significance of citric acid cycle.
3.	Explain mechanism of electron transport chain and oxidative phosphorylation.
4.	Describe process of β -oxidation of saturated fatty acid and its biological significance.

Section- C (7X5=35)

5.	Give brief description about the formation and utilization of ketone bodies.
6.	Discuss urea cycle and disorders related to urea cycle.
7.	Describe Michaelis plot of enzyme kinetics, give some examples of enzyme inhibitors.
8.	Write a note on HMP shunt and its biological significance.
9.	Explain amino acid metabolism along with general reactions involved in process.
10.	Discuss biological role of carbohydrate, lipids and proteins as biomolecules.
11.	Write a note on protein synthesis and its inhibitors.
12.	Explain general structural features of DNA and RNA with their biological importance.
13.	Discuss therapeutic and diagnostic applications of enzymes with suitable examples.

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Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	Define entropy and enthalpy.
ii.	Write the significance of melatonin.
iii.	Define gluconeogenesis.
iv.	Name different types of RNA.
v.	Define hyperbilirubinemia.
vi.	What do you mean by oxidative phosphorylation?
vii.	What is albinism?
viii.	What are lipids?
ix.	Define the term elongation.
x.	What is transamination?

Section- B (2X10=20)

2.	What are biomolecules? Write a detailed note on carbohydrates.
3.	Describe in detail the glycolysis cycle with its energetics and biological significance.
4.	Write a note on enzyme inhibition. Explain the Michaelis-Menten plot of enzyme kinetics.

Section- C (7X5=35)

5.	Describe the de novo synthesis of palmitic acid.
6.	Enumerate the electron transport chain.
7.	What are the functions of DNA?
8.	Write a short note on gout.
9.	Describe the catabolism of heme.
10.	Illustrate the properties of enzymes.
11.	Summarize the biological role of proteins.
12.	Comment on the IUB classification of enzymes
13.	Describe the disorders of lipid metabolism.

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(Evening)

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Section A

(10 X 2 = 20)

1.	Give very short answers to the followings
i.	What are enzymes?
ii.	What is terminal oxidation?
iii.	What is ketosis?
iv.	What is β -oxidation?
v.	Name the disorders of aromatic amino acid metabolism.
vi.	What is hepatic jaundice?
vii.	AMP stands for?
viii.	What is hnRNA?
ix.	What are co-enzymes?
x.	What is white adipose tissue?

Section B

(2 X 10 = 20)

2.	Explain urea cycle and its disorders.
3.	Explain glycolysis pathway and its significance.
4.	Write a note on co-enzymes.

Section C

(7 X 5 = 35)

5.	Describe the chemistry of proteoglycan.
6.	What are saturated fatty acids? Give 5 examples and their source.
7.	Write a note on cyclic AMP.
8.	What are proteins? Name the components of proteins & give their generalised structure.
9.	Give diagrammatic outline of HMP shunt.
10.	Describe various complications of diabetes mellitus.
11.	Describe the mechanism of oxidative phosphorylation.
12.	Describe bile and its functions.
13.	Write a short note on nitrogen fixation.

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16 JUN 2023

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*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section- A

(10 X 2 = 20)

1.	Give very short answers to the followings:
i.	What are the functions of nucleic acids?
ii.	What are free energy and its significance?
iii.	Give energetics of glycolysis?
iv.	Which diseases are caused by glycogen storage?
v.	What are ketone bodies and ketoacidosis?
vi.	Define fatty liver. How it is caused?
vii.	What do you understand by transamination?
viii.	What are genetic codes?
ix.	What are isoenzymes? Give their clinical uses.
x.	Define hyperuricemia and gout.

Section- B

(2 X 10 = 20)

2.	Explain the complete pathway, energetic and significance of citric acid cycle.
3.	Write a detailed note on various steps involved in electron transport chain.
4.	Describe in detail biosynthetic pathway of pyrimidine nucleotides.

Section- C

(7 X 5 = 35)

5.	Classify proteins. Give the biological role of proteins.
6.	Write a short note on glycolysis process.
7.	Discuss the de novo synthesis of fatty acids (Palmitic acid).
8.	Write a note on biological significance of cholesterol and conversion of cholesterol into bile acids.
9.	Explain structure and functions of DNA.
10.	Write in brief about urea cycle and its disorders.
11.	Discuss in brief the process of translation (Protein synthesis).
12.	Write a note on enzyme induction, repression and allosteric enzymes regulation.
13.	Explain properties, nomenclature and IUB classification of enzymes.

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210123

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*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.

Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	Give the biological role of proteins.
ii.	What is redox potential?
iii.	Define gluconeogenesis. What is its significance?
iv.	Give names of inhibitors of electron transport chain.
v.	What is atherosclerosis?
vi.	What do you understand by albinism?
vii.	What are genetic codes? Give examples.
viii.	Give significance of 5-HT and noradrenaline.
ix.	Write any four functions of DNA.
x.	Give biochemical functions of co-enzymes.

Section- B (2X10=20)

2.	Explain the complete pathway, energetic and significance of glycolysis.
3.	Write a detailed note on general reactions involved in amino acid metabolism.
4.	Describe in detail biosynthetic pathway of purine nucleotides.

Section- C (7X5=35)

5.	Classify carbohydrates. Give the biological role of carbohydrates.
6.	Write a short note on HMP shunt and its significance.
7.	Discuss the β -oxidation of saturated fatty acid (palmitic acid).
8.	Explain the catabolism of heme.
9.	Discuss the process of transcription.
10.	Write in brief about hyperurecemia and gout.
11.	What is enzyme kinetics? Explain Michaelis plot in detail.
12.	What are energy rich compounds? Give biological significance of ATP and cyclic AMP.
13.	Give therapeutic and diagnostic applications of enzymes and isoenzymes.

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13/06/25
(Morning)

130625

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****Section- B** consists of **three questions**, each carrying **10 marks** (Long Answer Type); **Attempt any two.**

*****Section- C** consists of **nine questions**, each carrying **5 marks** (Short Answer Type); **Attempt any seven.**

Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	Define glycogenolysis.
ii.	State about deamination?
iii.	What do you mean by elongation?
iv.	Define enzyme inhibition.
v.	What are monosaccharides? Give examples.
vi.	Define the genetic code?
vii.	Give the relationship between free energy, enthalpy, and entropy.
viii.	Define ketosis.
ix.	List the symptoms of albinism and phenylketonuria.
x.	Name the different types of RNA.

Section- B (2X10=20)

2.	Explain the HMP shunt pathway and its significance in detail.
3.	Describe the de novo synthesis of saturated long-chain fatty acids along with its regulation.
4.	Explain the Michaelis plot in enzyme kinetics.

Section- C (7X5=35)

5.	Write a short note on the Electron Transport Chain (ETC).
6.	List the disorders of lipid metabolism.
7.	State pyrimidine catabolism.
8.	Write the synthesis and significance of 5-HT.
9.	Mention the pathway of the TCA cycle.
10.	List the functions of amino acids.
11.	Write a short note on jaundice.
12.	State the different types of enzyme inhibitors with suitable examples.
13.	Mention the primary structure of proteins.

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Section- A (10X2=20)

1.	Give very short answers to the followings:
i.	Define bioenergetics and state its significance.
ii.	Mention the significance of HMP shunt.
iii.	What are ketone bodies? List any two.
iv.	Differentiate between transamination and deamination.
v.	Write a short note on hyperuricemia.
vi.	What is the role of G6PD in carbohydrate metabolism?
vii.	Define Michaelis-Menten constant (K _m).
viii.	Name any two enzyme inhibitors used therapeutically.
ix.	What is the function of cyclic AMP?
x.	Define genome and give one feature of mammalian genome organization.

Section- B (2X10=20)

2.	Describe the de novo synthesis of palmitic acid. Discuss the biological significance of cholesterol and its conversion products.
3.	Explain transcription and translation processes. Add a note on inhibitors of protein synthesis.
4.	Elaborate on enzyme kinetics using Michaelis-Menten and Lineweaver-Burk plots. Explain different types of enzyme inhibition with examples.

Section- C (7X5=35)

5.	Explain the energetics and significance of the glycolytic pathway.
6.	Discuss the process and regulation of β -oxidation of fatty acids.
7.	Explain the urea cycle and give two disorders associated with it.
8.	Describe oxidative phosphorylation and name any two of its inhibitors.
9.	Discuss the biosynthesis of purine nucleotides.
10.	Write a short note on the regulation and role of allosteric enzymes.
11.	Explain the synthesis and physiological importance of dopamine and serotonin.
12.	Illustrate the structure and functions of DNA and RNA.
13.	Discuss the catabolism of phenylalanine and related metabolic disorders.

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