24/6/2022 June

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

Programme	B. Pharmacy
Semester	2nd
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 X2 = 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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Section A (10 X2 = 20)

1. Choose the correct answers of the following (2 marks each):

i.	Amino acid residues present in protein are .....amino acids. a) α b) γ c) β d) δ
ii.	Sphingomylein is a derivative of..... a) Sphingosine b) Phosphotidic acid c) Ceramide d) a and c
iii.	ATP is a) Nucleotide c) Energy link between anabolism and catabolism b) Hydrolysed with positive ΔG d) All of the above
iv.	Bile acid is a) Cholesterol derivative c) Amino acid derivative b) Carbohydrate derivative d) Nucleotide derivative
v.	Following hormone is not involved in the regulation of blood glucose: a) Insulin b) Glucagon c) Epinephrine d) Oxytocin
vi.	Coenzyme derived from Vitamin B_3 is a) NAD b) NADP c) a & b both d) FAD
vii.	Transfer of amino acid to a keto acid is known as a) Transamination b) Transdeamination c) Deamination d) a and b both
viii.	The DNA strand which does not participate in transcription is referred to as a) Non-coding strand b) Coding strand c) Sense strand d) All of these
ix.	For endergonic reactions ΔG is..... a) Positive b) Zero c)Negative d) Slightly negative
x.	Synthesis of fatty acid takes place in a) Cytosol b) Mitochondria c) Both A and B d) Membrane

Section B (2 X 10 = 20)

2.	Describe the reactions of citric acid cycle and comment on its anapleoratic nature.
3.	Write a note on enzyme inhibition. Explain Michaelis-Menton plot of enzyme kinetics.
4.	Describe various steps of protein synthesis. Comments on its inhibitors.

Section C (7 X 5 = 35)

5.	Describe reactions of urea cycle.
6.	Discuss hormonal regulation of blood glucose level.
7.	What is oxidative phosphorylation? Discuss its mechanism.
8.	Explain gout disease. Give the structure of DNA and RNA.
9.	Draw structure of ATP and describe its biological, significance as high energy molecules.
10.	Explain the mechanism of Electron Transport Chain.
11.	Describe the reactions of ketogensis.
12.	Give structure and biochemical significance of coenzymes derived from Vitamin B_2.
13.	Describe the biological significance and biosynthesis of adrenaline.

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Roll No. | | | | | | | | | | | Total No. of Pages : 03

Total No. of Questions : 13

B.Pharma (2017 & Onwards) (Sem.-2)

BIOCHEMISTRY

Subject Code : BP-203T

M.Code : 74969

Time : 3 Hrs. Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

1. **Multiple choice questions :**

a) Formation of cyclic structure of α-D glucose is an example of:

(a) Nucleophillic addition (b) Hemi-acetal formation

(c) Acetal formation (d) Both (a) and (b)

b) Amino acids in proteins are usually in :

(a) L form (b) D form

(c) Both L & D form (d) Either L or D

c) ..... enzyme is required for oxidative decarboxylation of pyruvic acid.

(a) PDH (b) Pyruvate kinase

(c) Enolase (d) GADPH

d) Following hormone is not involved in the regulation of blood glucose :

(a) Insulin (b) Epinephrine

(c) Glucagon (d) Oxytocin

e) Formation of ATP coupled with de phosphorylation of phosphoenolpyruvate is the example of :

(a) Substratelevel phosphorylation

(b) Oxidative phosphorylation

(c) Substrate level dephosphorylation

(d) Oxidative dephosphorylation

f) Bile acid is :

(a) Cholesterol derivative (b) Carbohydrate derivative

(c) Amino acid derivative (d) Nucleotide derivative

g) First digit of EC number of succinate thiokinase is :

(a) 1 (b) 4

(c) 3 (d) 6

h) The DNA strand which does not participate in transcription is referred to as :

(a) Non-coding strand (b) Sense strand

(c) Coding strand (d) All of these

i) ..... pathway recycle the free bases and nucleoside released from nucleic acid breakdown.

(a) Salvage (b) De novo

(c) Both (a) & (b) (d) None of these

j) Following is not the cause of atherosclerosis :

(a) High BP (b) High cholesterol

(c) Diabetes (d) Acidosis

SECTION-B

2. Describe the reactions of citric acid cycle and comment on its anapleoratic nature.

3. Describe the reaction of β-oxidation. Comment on energy conservation in this catabolic pathway.

4. Describe the various steps of protein synthesis. Comment on inhibitors of this anabolic pathway.

SECTION-C

5. Classify polysaccharides with one structural example of each class. Comment on the structure of starch.

6. Name the four level of protein structure. Briefly explain secondary structure of protein.

7. Discuss the structure of ATP and its biological significance.

8. Compare glycolysis and gluconeogenesis.

9. Explain the mechanism of electron transport chain.

10. Describe the reactions of ketogenesis.

11. Explain the semi conservative model of DNA replication.

12. Describe the synthesis and biological significance of dopamine.

13. What is Lineweaver-Burk plot of enzyme kinetics? What are its advantages over Michaelis-Menten plot?

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Total No. of Pages : 03

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B.Pharma (2017 & Onwards) (Sem.-2)

BIOCHEMISTRY

Subject Code : BP-203T

M.Code : 74969

Time : 3 Hrs.

Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

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3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

Q1. Answer briefly :

a) Amino acid residues present in protein are..... amino acids.

i. α ii. β iii. γ iv. δ

b) Formation of cyclic structure of glucose from open chain structure is an example of.....

i. Nucleophilic addition ii. Formation of hemi-acetal

iii. Formation of acetal iv. i and ii

c) Sphingomylein is a derivative of .

i. Sphingosine ii. Ceramide iii. Phosphotidic acid iv. i and ii.

d) For C_α-C bond in backbone of protein, the bond angle resulting from rotation at C_α is labeled as

i. Φ ii. Ψ iii. θ iv. i and ii both

e) The successive nucleotides in DNA are linked through ..... bridge.

i. Phosphodiester ii. Amide iii. Glycosidic iv. None of these

f) transports free fatty acid from cytosol to mitochondria.

i. Carnitine shuttle ii. Citrate shuttle

iii. Both i and ii iv. Neither i nor ii

g) ATP is

i. Nucleotide

ii. Energy link between anabolism and catabolism

iii. Hydrolysed with positive ΔG

iv. All of the above

h) .....is an essential amino acid.

i. Lysine ii. Tyrosine iii. Glycine iv. Alanine.

i) Transfer of amino acid to a keto acid is known as

i. Transamination ii. Deamination

iii. Transdeamination iv. i and iii both.

j) Myocardial infarction can be diagnosed by isoenzyme of

i. LDH ii. ALP iii. SGOT iv. ACP

SECTION-B

Q2 Give outline for gluconeogenesis. Explain its biochemical significance.

Q3 Describe the *de novo* synthesis of pyrimidine nucleotides. Comment on hyperuricemia.

Q4 Give IUB system of enzyme classification. Discuss the two diagnostic applications of isoenzymes citing suitable examples.

SECTION-C

Q5 Explain various types of stereoisomerism present in monosaccharides.

Q6 Explain the mechanism of oxidative phosphorylation.

Q7 Describe the various steps involved in β-oxidation.

Q8 Describe biosynthesis of catecholamines from tyrosine catabolism.

Q9 Discuss the biochemical causes of jaundice.

Q10 Describe reactions of Kreb-Henseleit cycle.

Q11 Describe post transcriptional modifications in primary transcripts of mRNA.

Q12 Give outline for the conversion of cholesterol to adrenal cortex hormone.

Q13 Give structure and biochemical significance of co-enzymes derived from Vitamin B2.

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