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Total Number of Pages 16

B.V.Sc. & A.H. (Second Professional) Examination – 2023

Veterinary Biochemistry Paper –II

(MSVE 2016)

To be filled by the candidate:

Candidate's Roll Number: Library

In figure .....

In words .....

Candidate's Enrolment Number: .....

Day and date of examination: .....

Please see for general instructions overleaf.

Signatures of invigilators verifying the details filled by the candidate

Signature of invigilator 1: ..... 2: .....

Candidate should not write anything below this line

Marks to be filled by the examiner:

Section A	
Q. No.	**Marks**
1.	
2.	
3.	
4.	
5.	
Total	

Total Marks obtained:

In figures: ..... In words: .....

Signature of examiner: .....

Malviya

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B.V.Sc. & A.H. (Second Professional) Examination – 2023
Veterinary Biochemistry Paper -II

Time: Three Hours **Maximum Marks: 100**
Weightage: 20

Unit-2 (Intermediary Metabolism)

Instructions:

1) Attempt all questions
2) Answer of all questions is to be written in the space provided along with the question in question-booklet.
3) Overwriting is not allowed in the objective type question.

Q.1 Fill in the blanks. **(20x0.5 = 10)**

1.1 Entry of glucose in skeletal muscle is mediated via ..... (name of transporter).

1.2 Stimulatory effect of oxygen on the fermentation process is known as .....

1.3 Enzymes are nomenclature with ..... digit numbers.

1.4 An integral component of coenzyme A is .....

1.5 The non protein part of holoenzyme is called .....

1.6 2,3 bisphosphoglycerate is synthesized in.....

1.7 Glycogenin serves as primer for.....

1.8 The rate limiting step of cholesterol bio-synthesis is catalysed by .....

1.9 The x-intercept in double reciprocal plot is .....

1.10 The class of enzyme that do not exhibit stereospecificity is .....

1.11 Urea synthesis only occurs in the .....

1.12 If the nonprotein component of an enyzme is firmly attached to the protein it is called a.....

1.13 The reactions that replenish the TCA cycle intermediate are termed as .....

1.14 The competitive inhibition is overcome by increasing the ..... concentration.

1.15 In urea synthesis nitrogen atom is supplied by .....

1.16 Uric acid is end product of ..... Metabolism.

1.17 Phosphocreatine, a storage forms of high-energy phosphates stored in.....

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1.18 The enzyme contains allosteric sites are called.....

1.19 Ascorbic acid is not synthesized in primate due to deficiency of the enzyme .....

1.20 Glucose 6 Phosphatase enzyme absent in ..... (name of tissue).

Q.2 Choose the most suitable answer and write the number of the correct answer 1 or 2 or 3 or 4 in the space given against each sub question: (20x0.5 = 10)

2.1 De-novo purine synthesis takes place in ( )
1. mitochondria
2. cytosol
3. endoplasmic reticulum
4. nucleus

2.2 DNA replication requires ( )
1. SSB
2. Rho factor
3. Initiation factors
4. Releasing factors

2.3 Anaerobic glycolysis is the main source of energy in ( )
1. Red blood cells
2. Nerve cells
3. Cardiac cells
4. Liver cells

2.4 Complete oxidation of a mole of palmitic acid produces ( )
($1NADH_2$=2.5 ATP, $1FADH_2$=2.5 ATP)
1. 110 ATP
2. 106 ATP
3. 97 ATP
4. 32 ATP

2.5 Cori cycle is involved in the metabolism of ( )
1. Alanine
2. Glutamate
3. Pyruvate
4. Lactate

2.6 All reactions of urea cycle take place in ( )
1. Mitochondria
2. Cytoplasm
3. Both mitochondria and cytoplasm
4. None of the above

2.7 Which of the following enzymes is not responsible for the production of NADH in the Krebs cycle? ( )
1. Alpha ketoglutarate dehydrogenase
2. Isocitrate dehydrogenase
3. Succinate dehydrogenase
4. Malate dehydrogenase

2.8 Liberation of amino groups as free ammonia is described as which of the following? ( )
1. Transamination
2. Deamination
3. Transacetylation
4. Transduction

2.9 Which of the following enzyme is not involved in ketogenesis ( )
1. HMG CoA reductase
2. HMG CoA synthase
3. Thiolase
4. HMG CoA lyase

2.10 Which of the following pathways utilizes a major portion of NADPH in cells? ( )
1. Lipogenesis
2. Hexose monophosphate pathway
3. Glycogenolysis
4. Krebs cycle

2.11 The synthesis of RNA from a DNA template is known as? ( )
1. Transcription
2. Translation
3. Replication
4. Transmutation

2.12 The enzyme involved in glycogen breakdown is ( )
1. glycogen synthase
2. glycogen phosphorylase
3. branching enzyme
4. none of these

2.13 Enzymes increase the rate of reaction by ( )
1. lowering the activation energy
2. increasing the activation energy
3. no change in activation energy
4. none of above three

2.14 Which is the major site of production of ketone bodies ( )
1. Kidney
2. Intestine
3. Brain
4. Liver

2.15 Coenzyme Q can accept hydrogen atoms directly from ( )
1. FMNH2
2. FADH2
3. NADH2
4. All of the above

2.16 How many substrate level phosphorylation occur during aerobic glycolysis? ( )
1. One
2. Two
3. Three
4. None

2.17 A competitive inhibitor of an enzyme ( )
1. Decrease KM as well as V max
2. Decrease KM without affecting Vmax
3. Increase KM without affecting Vmax
4. Decrease Vmax without affecting KM

2.18 FAD is a coenzyme involved in which of the following pathways? ( )
1. Beta oxidation of fatty acids
2. Fatty acid biosynthesis
3. Hexose monophosphate shunt
4. Glycolysis

2.19 Which metal ion cofactor is required by phosphotransferase? ( )
1. Zn^{2+}
2. Fe^{2+}
3. Mg^{2+}
4. Cu^{2+}

2.20 In Gluconeogenesis, there are ____ bypass reactions involving glycolysis ( )
1. Three
2. Two
3. One
4. Four

Q.3 Attempt any <u>ten</u> out of the following twelve questions. Answer of each question should be in 2 to 3 lines. (10x2.0= 20)

3.1 Katal

3.2 Ionophores

3.3 Glycogenesis

3.4 Ketosis

3.5 Lipoproteins

3.6 Coenzymes

3.7 Ribozyme

3.8 Codon

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3.9 Oxidative Phosphorylation

3.10 Competitive inhibition

3.11 Transamination

3.12 Transcription

Q.4 Attempt any six out of the following eight questions. Answer of each question should be in 8 to 10 lines. **(6 x 6.0 = 36)**

4.1 Explain why Gluconeogenesis is not the simple reversal of glycolysis ?

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4.2 Krebs-Henseleit cycle (Urea Cycle).

4.3 Significance of HMP shunt

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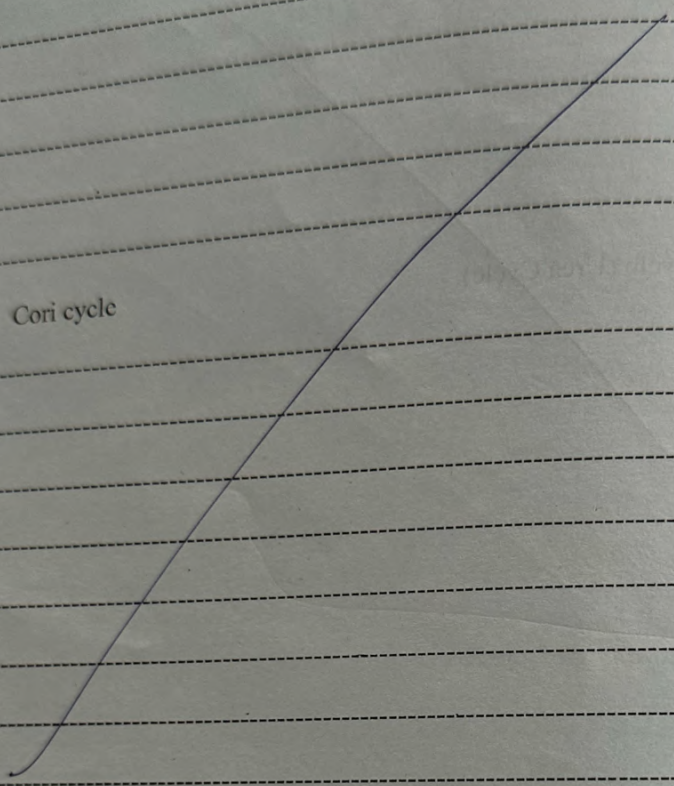
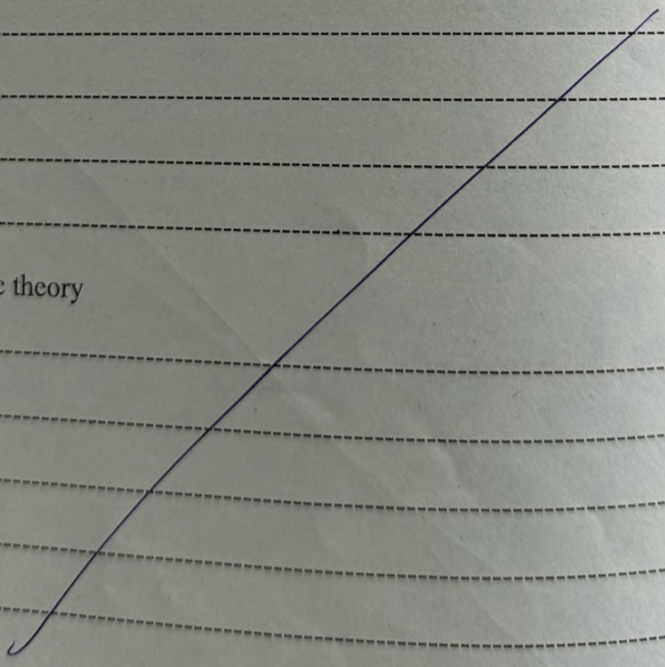
4.4 Cori cycle



4.5 Chemiosmotic theory



4.6

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4.6 Classification of enzyme with example

4.7 How many ATP molecules are typically produced by ATPase in the Electron Transport Chain from one molecule of $NADH_2$? Please draw a diagram to illustrate the process.

Please write

4.8 Allosteric Enzymes and its inhibition

Q.5 Answer the following question in 1-2 pages (attempt any two).

(2x12.0 = 24)

5.1 Describe in detail about Transcription in prokaryotes.

5.2 Describe in detail about TCA cycle with illustration, and bioenergetics.

5.3 Describe in detail about β- Oxidation of 16 carbon saturated fatty acid with bioenergetics