

Enrollment No.

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M.B.B.S.

I Prof. Examination

Subject Code – MBBS 131 Paper I

Subject Name- Biochemistry

[Time : Three Hours]

[Max. Marks : 100]

Note : Attempt all the questions. Use separate answer sheets for Section A & Section B. Parts of a question must be attempted in sequence. Draw well-labeled diagrams wherever necessary.
MCQs (separate sheet will be provided) [01x20=20]

Section – A

1. (Problem-based long essay-type question) [3+3+4 =10]

A 2-year-old child presents to hospital with history of generalized fits. Baby was born full term by normal vaginal delivery. On examination, baby had delayed milestone and lethargic, hair was grey colored and skin was light colored. Mother gave the history of mousy odor in the urine.

- a. What is the most probable diagnosis in the case?
What is the enzyme deficiency?
- b. Why the baby's hair is grey and skin is light colored?
- c. What are the special products of Tyrosine?

2. Write short notes on-

[5x3=15]

- a. Enumerate and describe professional qualities and roles of a physician.
- b. Beta Oxidation & its clinical Significance.
- c. Electron Transport chain.

3. Answer in brief:

[5x3=15]

- a. Explain in brief Regulation of Blood Glucose.
- b. Metabolic Acidosis.
- c. Phospholipids & their functions.

[P.T.O.]

ENTR

Section – B

[3+3+ 4=10]

1. *(Problem based long essay type question)*

A 1- year-old boy presents to hospital with complain of swelling abdomen, pain and diarrhea after taking milk and other dairy products. These symptoms were existing for past 4 months and started soon after weaning was introduced. Baby is totally alright when fruit juice is given. On examination, perianal skin showed erythema which may be due to frequent passage of stool with low pH.

- a. What is the most probable diagnosis in this case?
- b. What is the enzyme deficiency in this case?
- c. What is the biochemical basis of signs and symptoms in this disease?

[5x3=15]

2. Write short notes on-

- a. Mucopolysaccharides & their clinical significance
- b. Enzyme Inhibition
- c. Hemoglobinopathies.

[5x3=15]

3. Answer in brief:

- a. Special products of Glycine.
- b. Jaundice & its types.
- c. Classification of Amino acids.

Enrollment No.

Invigilator's Signature

M.B.B.S.- I Prof. Examination
Subject Code – MBBS 131
Subject Name Biochemistry

Paper I

Multiple Choice Questions
[Time : 15 Minutes]

[Max. Marks: 20]

Note: Write your enrollment. Number on the Question paper. Each MCQ carries 01 mark. Each Question has only one best correct response. Encircle the correct answer letter. More than one encircle or any overwriting will be considered the wrong answer. There is no negative marking. DO NOT use a pencil for writing.

I	The neurotransmitter derived from tryptophane is: (a) GABA (c) Serotonin	(b) Epinephrine (d) Norepinephrine
II	ATP Synthetase is present in: (a) Complex I (c) Complex IV	(b) Complex II (d) Complex V
III	Enzyme Trans-ketolase requires: (a)FAD (c)TPP	(b) PLP (d)FMN
IV	Glucose transporter in RBC? (a)GLUT-1 (c)GLUT-3	(b) GLUT-2 (d) GLUT-4
V	Type 1 Diabetes is associated with: (a) Lipogenesis (c)Glycogenesis	(b) Lipolysis (d) Glycolysis
VI	The nitrogenous base in lecithin is: (a)Choline (c)Ethanolamine	(b)Serine (d) Threonine
VII	Cholesterol is excreted through: (a)Urine (c)Feces	(b) Sweat (d)Bile
VIII	Amino acid absorption is by: (a)Facilitated transport (c)Active transport	(b) Passive transport (d) Pinocytosis
IX	Ammonia toxicity is caused by depletion of: (a)Oxaloacetate (c)Alpha-Ketoglutarate	(b)Acetyl CoA (d)Pyruvate
X	Which type of porphyrin is heme? (a)Series I (c)Series IX	(b)Series II (d)Series XV

[P.T.O.]

XI	The level of hemoglobin in the new born baby is: (a)20% (c)12%	(b)15% (d)10%
XII	C4, C5 and N7 of the purine structure are contributed by: (a)Glutamine (c)Glycine	(b)Aspartate (d)Serine
XIII	Which of the following is a nucleoside: (a)Adenine (c)Thymine	(b)Uridine (d)Guanine
XIV	Ketone bodies cannot be utilized by: (a)Heart (c)Skeletal muscles	(b)Brain (d) RBCs
XV	All of the following amino acids contain hydroxyl groups except: (a)Serine (c)Threonine	(b)Lysine (d)Tyrosine
XVI	Cytochrome Oxidase contains: (a)Ca ²⁺ (c)Cu ²⁺	(b)Mn ²⁺ (d)Zn ²⁺
XVII	Most essential fatty acid is: (a) Linolenic acid (c)Arachidonic acid	(b) Linoleic acid (d) Eicosapentaenoic acid
XVIII	Which of the following is a physiological uncoupler? (a)Thyroxine (c)Glucagon	(b)Insulin (d) Norepinphrine
XIX	Marker enzyme for Golgi apparatus: (a)Galactosyl Transferase (c)5' Nucleotidase	(b) Glucose 6 phosphates (d) Catalase
XX	Km changes and Vmax remains the same. what is the type of enzyme inhibition? (a)Competitive Inhibition (c)Uncompetitive Inhibition	(b) Non -Competitive Inhibition (d) Catalase

Printing Pages: 2

SVSU/2024/R (B)
Paper Code: MBBS-132

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M.B.B.S.

First Professional Examination

Subject Code: MBBS-132

Subject Name: Biochemistry-II

[Time: Three Hours]

[Max. Marks: 100]

Note: Attempt all the questions. Use separate answer sheets for Section A & Section B. Parts of a question must be attempted in sequence. Draw well-labelled diagrams wherever necessary.

MCQs (separate sheet will be provided)

(01x20=20)

Section-A

1. Long Question:

(2+4+4=10)

- What is translation?
- Discuss post-translational modifications.
- Add a note on protein targeting.

2. Write short notes on:

(5x5=25)

- Biochemical basis of rickets
- Dietary significance of PUFA
- Applications of reverse transcriptase
- Significance of tumor markers
- Wilson's disease

3. Question on AETCOM:

What are medical records? List at least 4 methods by which medical records can be maintained and explain the importance of medical documentation.

(5)

[P.T.O.]

10001

Section-B

1. Long Question:

(2+2+6=10)

- a) Write the full form of RFLP in recombinant DNA technology (RDT).
- b) Mention different vectors used in RDT.
- c) Discuss applications of RDT in medicine.

2. Write short notes on:

(6x5=30)

- a) DNA replication
- b) Hypersensitivity reactions
- c) High-performance liquid chromatography (HPLC)
- d) Role of antibiotics in protein synthesis
- e) Health benefits associated with consuming a diet rich in antioxidants.

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M.B.B.S.

Invigilator's Signature

First Professional Examination

Subject Code: MBBS-132

Subject Name: Biochemistry-II

Multiple Choice Questions

[Time: 15 Minutes]

[Max. Marks: 20]

Note: Write your enrollment number on the question paper. Each MCQ carries a 01 mark. Each question has only one best correct response. Encircle the correct answer letter. More than one encircle or overwriting will be considered a wrong answer. There is no negative marking. DO NOT use a pencil for writing.

1. The enzyme responsible for the synthesis of RNA from DNA is:
 - a) DNA polymerase
 - b) RNA polymerase
 - c) Reverse transcriptase
 - d) Deoxyribonuclease
2. Exposure to UV radiation can lead to the formation of pyrimidine dimers in DNA, which can act as:
 - a) Mutagens
 - b) Transcription factors
 - c) Signal transduction molecules
 - d) Co-enzymes
3. The technique used to separate proteins based on their size is:
 - a) Centrifugation
 - b) Electrophoresis
 - c) Chromatography
 - d) Mass spectrometry
4. What is the primary function of G-protein-coupled receptors (GPCRs)?
 - a) To bind hormones and facilitate their entry into the cell.
 - b) To transmit signals from outside the cell to the inside.
 - c) To transport ions across the cell membrane.
 - d) To synthesize proteins.
5. Which of the following statements about MHC (Major Histocompatibility Complex) is correct?
 - a) MHC class I molecules present exogenous antigens to T cells.
 - b) MHC class II molecules present endogenous antigens to T cells.
 - c) MHC class I molecules are primarily expressed on antigen-presenting cells.
 - d) MHC class II molecules are recognized by CD8+ T cells.
6. Which of the following is an example of post-transcriptional regulation of gene expression?
 - a) DNA methylation
 - b) Histone acetylation
 - c) Alternative splicing
 - d) Enhancer binding
7. In hepatic diseases
 - a) Both the bound iron and total iron binding capacity of the plasma may be low
 - b) Both the bound iron and total iron binding capacity of the plasma may be high
 - c) Only bound iron may be high
 - d) Only the total iron binding capacity may be high

[P.T.O.]

8. Selenium is a constituent of the enzyme:
 - a) Homogentisate oxidase
 - b) Glutathione peroxidase
 - c) Tyrosine hydroxylase
 - d) Phenylalanine hydroxylase
9. The "rho" factor is involved:
 - a) To increase the rate of RNA synthesis
 - b) In binding catabolite repressor to the promoter region
 - c) In proper termination of transcription
 - d) To allow proper initiation of transcriptide
10. The percentage of nitrogen retained in the body after absorption of diet represents:
 - a) Digestibility coefficient of proteins
 - b) Biological value of proteins
 - c) Protein efficiency ratio
 - d) Net protein utilisation
11. Crigler's Najjar Syndrome II occurs due to:
 - a) Excessive production of bilirubin
 - b) Complete absence of a conjugating enzyme
 - c) Partial deficiency of the conjugating enzyme
 - d) Overexpression of conjugating enzymes
12. In a typical operon, which component allows for the binding of RNA polymerase to initiate transcription?
 - a) Promoter
 - b) Operator
 - c) Enhancer
 - d) Terminator
13. Which of the following vitamins is NOT fat-soluble?
 - a) Vitamin A
 - b) Vitamin C
 - c) Vitamin D
 - d) Vitamin E
14. Insulin is a peptide hormone synthesized and secreted by:
 - a) Pituitary gland
 - b) Adrenal gland
 - c) Pancreas
 - d) Parathyroid gland
15. During DNA replication, the enzyme responsible for unwinding the parental DNA doublehelix is:
 - a) DNA polymerase
 - b) Helicase
 - c) DNA ligase
 - d) Topoisomerase
16. Uncontrolled cell proliferation is a hallmark characteristic of:
 - a) Benign tumors
 - b) Metaplasia
 - c) Malignant tumors
 - d) Inflammation
17. The primary target cell for HIV infection is:
 - a) Red blood cell
 - b) T lymphocyte
 - c) Muscle cell
 - d) Neuron
18. One manifestation of vitamin A deficiency is:
 - a) Painful joints
 - b) Loss of hair
 - c) Night blindness
 - d) Thickening of long bones
19. Calcitriol synthesis involves
 - a) Intestine
 - b) Adipose tissue
 - c) Muscle
 - d) Liver & Kidney
20. Ceruloplasmin shows the activity as a:
 - a) Ferroxidase
 - b) Reductase
 - c) Ligase
 - d) Transferase
