

Course Title: Medical Biochemistry II

DT 2nd, Sec A

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Max Marks: 30

Note: There are TWO sections

Section A consist of 15 MCQs and 10 match column questions, each carry ONE mark with grand total of 25 marks.

Choose the appropriate option and write in the ANSWER section.

Section B consist of 2 short questions, with grand total of 5 marks

Write to the point answers, do not give explanation.

ATTEMPT all questions of Section A and Section B

SECTION A

1. Malnutrition means

- a. A person is not eating properly.
- b. May mean undernutrition or over nutrition.**
- c. Someone is starved.
- d. Someone is eating too much.

2. The first reaction in the citric acid cycle is binding

- a. Carbon dioxide to a four-carbon (C4) molecule.
- Acetyl-CoA to a C4 molecule.**
- c. Acetyl-CoA to a C5 molecule.
- d. Acetyl-CoA to citric acid.

3. Macronutrients that provide energy include all except:

- a. carbohydrate
- b. Proteins
- c. Fats
- d. fiber**

4. Which process produces both NADH and FADH₂?
- a. The citric acid cycle
 - b. Glycolysis
 - c. Urea cycle
 - d. The preparatory reaction
5. Which nutrient provides the most amount of energy per gram?
- a. Carbohydrate
 - b. Fats
 - c. Protein
 - d. Vitamin
6. At what age do people suffer the most from malnutrition?
- a. Elderly
 - b. Teenagers
 - c. Elderly and Children
 - d. Teenagers and Children
7. The preparatory steps of glycolysis breaks
- a. Glucose into pyruvates.
 - b. Pyruvates into glucose.
 - c. Glucose into glyceraldehyde-3-phosphate.
 - d. Pyruvates into acetyl-CoA and CO₂.
8. Which statement about glycolysis is correct?
- a. Resulting pyruvate molecules are always directly incorporated into the Krebs cycle
 - b. Glycolysis cannot proceed under anaerobic conditions
 - c. Three molecules of NADH₂ and one molecule of FADH₂ are produced
 - d. Two net molecules of ATP are produced through substrate-level phosphorylation.
9. Which of the following is a product of glycolysis?

- a. GTP
- b. Glucose
- c. NADH**
- d. Acetyl CoA

10. Which of the following biological processes will occur under both aerobic and anaerobic conditions in humans?

- a. Citric acid cycle
- b. Glycolysis**
- c. Krebs cycle
- d. Urea cycle

11. Meat and fish provide the following important nutrient

- a. Carbohydrate
- b. Protein**
- c. Lipid
- d. Fiber

12. Which of the following product is not created by aerobic glycolysis?

- a. Pyruvate
- b. Lactic acid**
- c. NADH
- d. ATP

13. Which of the following is not include in the symptoms of kwashiorkor.

- a. Cracked and scaly skin
- b. Loss of appetite**
- c. Excess sweating
- d. Learning disability

14. What is the definition of overweight?

- a. BMI > 18.5
- b. BMI 18.5 - 24.9
- c. BMI 25 - 29.9**
- d. BMI 30 and higher

15. Which of the following is not true of the citric acid cycle?

- a. All enzymes of the cycle are located in the cytoplasm, except succinate dehydrogenase, which is bound to the inner mitochondrial membrane.**
- b. In the presence of malonate, one would expect succinate to accumulate.
- c. Oxaloacetate is used as a substrate but is not consumed in the cycle.
- d. Succinate dehydrogenase channels electrons directly into the electron transfer chain.

Match column A with column B and write the correct option (only correct letter) in column C

Sr. No	A		B	C
16	Lactate	A	polysaccharides starch	F
17	Proper growth	B	Macronutrient	H
18	Urea	C	Marasmus	G
19	Swelling	D	Triose	J
20	Fiber	E	Kwashiorkor	B
21	Dietary carbohydrates	F	Anaerobic glycolysis	A
22	Enlarged liver	G	Non toxic	E
23	Pyruvate	H	Balanced diet	D

24	Low calorie intake	I	Unsaturated fat	C
25	Canola oil	J	Edema	I

SECTION B

26. Mention the products of Glycolysis? (2)

27. Write down the names of health issues associated with Obesity. (3)

ANSWERS

1	B	10	B	19	J
2	B	11	B	20	B
3	D	12	B	21	A
4	A	13	B	22	E
5	B	14	C	23	D
6	C	15	A	24	C
7	C	16	F	25	I
8	D	17	H		
9	C	18	G		

26

Glycolysis products ;

- *In glycolysis glucose is break down into three carbon molecule called pyruvate (aerobic glycolysis) or lactate (anaerobic glycolysis)*
- Overall glycolysis gives 4ATP while 2ATP are consume in preparatory phase and only 2ATP are remaining

Net product of glycolysis

- 2 pyruvate or 2lactate
- 2ATP
- 2NADH
- 2Hydrogen ions

27

Problems related to obesity

- Sexual problem
- Heart diseases
- Hypertension
- Reproductive disorder
- Dyslipidemia
- Certain cancer (kidney,uterus,braest etc)
- Mood disorder
- Diabetes
- Breathing problem