**Course Title: Medical Biochemistry II**

**Radiology 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**
2. A person is not eating properly.
3. May mean undernutrition or over nutrition.
4. Someone is starved.
5. Someone is eating too much.
6. **The first reaction in the citric acid cycle is binding**
7. Carbon dioxide to a four-carbon (C4) molecule.
8. Acetyl-CoA to a C4 molecule.
9. Acetyl-CoA to a C5 molecule.
10. Acetyl-CoA to citric acid.
11. **Macronutrients that provide energy include all except:**
12. carbohydrate
13. Proteins
14. Fats
15. Fiber
16. **Which process produces both NADH and FADH2?**  
    **a**. The citric acid cycle  
    b. Glycolysis  
    c. Urea cycle  
    d. The preparatory reaction
17. **Which nutrient provides the most amount of energy per gram?**
    1. Carbohydrate
    2. Fats
    3. Protein
    4. Vitamin
18. **At what age do people suffer the most from malnutrition?**
19. Elderly
20. Teenagers
21. Elderly and Children
22. Teenagers and Children
23. **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.
24. **Which statement about glycolysis is correct?**
25. Resulting pyruvate molecules are always directly incorporated into the Krebs cycle
26. Glycolysis cannot proceed under anaerobic conditions
27. Three molecules of NADH2 and one molecule of FADH2 are produced
28. Two net molecules of ATP are produced through substrate-level phosphorylation.

**9.** **Which of the following is a product of glycolysis?**

1. GTP
2. Glucose
3. NADH
4. Acetyl CoA

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

1. Citric acid cycle
2. Glycolysis
3. Krebs cycle
4. Urea cycle

**11. Meat and fish provide the following important nutrient**

1. Carbohydrate
2. Protein
3. Lipid
4. Fiber

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

1. Pyruvate
2. Lactic acid
3. NADH
4. ATP

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

* 1. Cracked and scaly skin
  2. Loss of appetite
  3. Excess sweating
  4. 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?**

* 1. All enzymes of the cycle are located in the cytoplasm, except succinate dehydrogenase, which is bound to the inner mitochondrial membrane.
  2. In the presence of malonate, one would expect succinate to accumulate.
  3. Oxaloacetate is used as a substrate but is not consumed in the cycle.
  4. 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 |  |
| 17 | Proper growth | B | Macronutrient |  |
| 18 | Urea | C | Marasmus |  |
| 19 | Swelling | D | Triose |  |
| 20 | Fiber | E | Kwashiorkor |  |
| 21 | Dietary carbohydrates | F | Anaerobic glycolysis |  |
| 22 | Enlarged liver | G | Non toxic |  |
| 23 | Pyruvate | H | Balanced diet |  |
| 24 | Low calorie intake | I | Unsaturated fat |  |
| 25 | Canola oil | J | Edema |  |

**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.(Edema)** |
| **2** | **D.** | **11** | **B.** | **20** | **A.( polysaccharides starch)** |
| **3** | **D.** | **12** | **B.** | **21** | **B.( Macronutrient)** |
| **4** | **A.** | **13** | **D.** | **22** | **E.( Kwashiorkor)** |
| **5** | **B.** | **14** | **C.** | **23** | **D.( Triose)** |
| **6** | **C.** | **15** | **C.** | **24** | **C.( Marasmus)** |
| **7** | **C.** | **16** | **F.**  **(Anaerobic glycolysis)** | **25** | **I.( Unsaturated fat)** |
| **8** | **D.** | **17** | **H.**  **(Balanced diet)** | **26** | **Answer is given below** |
| **9** | **C.** | **18** | **G.**  **(Nontoxic)** | **27** | **Answer is given below** |

**QNO 26: Mention the products of Glycolysis?**

**Answer:**

The net end products of glycolysis are as follows:

* Two Pyruvates(C3H4O3),
* Two NADH(C21H27N7O14P2),
* Two ATP

(Adenosine triphosphates-high energy rich compound also called universal energy currency because cells stores energy in the form of ATP)

**QNO 27: Write down the names of health issues associated with Obesity?**

**Answer:**

The names of the health issues and risks associated with obesity are as follows:

* Sleep apnea and breathing problems
* Heart disease and stroke
* Gall bladder disease and gall stones
* Osteoarthritis
* High blood pressure(Hypertension)
* Gout
* Type 2 diabetes
* Low quality of life
* Mental Illness such as clinical depression, anxiety and other mental disorders
* High level of triglycerides
* Body pain and difficulty with physical functioning