

Note the below:

1. All the questions are compulsory.
2. Draw neat & suitable diagrams wherever necessary.
3. Figures to the right indicate full marks.

Q.1. Choose the correct option & rewrite the statements.

(2 Marks each)

1. Fatty acid contains \_\_\_\_\_ functional group.  
a) Aldehyde b) Alcohol c) Carboxylic acid d) Ketone
2. Lipogenesis is \_\_\_\_\_.  
a) Formation of protein b) Formation of carbohydrate c) Formation of lipid  
d) Formation of glycogen
3. Lipolysis is \_\_\_\_\_.  
a) Breakdown of glucose b) Breakdown of protein c) Breakdown of lipid  
d) Breakdown of lipoprotein
4. MUFA stands for \_\_\_\_\_.  
a) Mono unsaturated fatty acids b) Multi unsaturated fatty acids c) Both  
d) None of the above
5. PUFA Stands for \_\_\_\_\_.  
a) Phosphate unsaturated fatty acids b) Poly unsaturated fatty acids  
c) Palm unsaturated fatty acids d) Palmitic unsaturated fatty acids
6. The quantity of free fatty acid in Fat is called \_\_\_\_\_.  
a) Acid value b) Saponification c) Ozonolysis d) None of the above
7. The hydrolysis of fats by alkali is called \_\_\_\_\_.  
a) Saponification b) Ozonolysis c) Acid value d) None of the above
8. \_\_\_\_\_ is a number of grams of iodine absorbed by 100 gm of fat.  
a) Saponification b) Ozonolysis c) Acid value d) Iodine number
9. \_\_\_\_\_ are the building blocks of both DNA and RNA.  
a) Nucleotides b) Nucleosides c) Nitrogen base d) Ribose sugar
10. \_\_\_\_\_ takes place after transcription.  
a) Digestion b) Accumulation c) Circulation d) Translation
11. What does ATP stand for?  
a) Adenine triphosphate b) Adenosine triphosphate c) Adeno triphosphate  
d) Arginine triphosphate
12. \_\_\_\_\_ is a pyrimidine nucleoside triphosphate, consisting of the organic base uracil linked to the 1' carbon of the ribose sugar.  
a) ATP b) GTP c) UTP d) TTP
13. \_\_\_\_\_ and deoxyribose are two types of pentose sugar that occur in nucleotides.  
a) Fructose b) Ribose c) Glucose d) None of the above
14. The DNA contains all of the nitrogenous bases except \_\_\_\_\_.  
a) Thymine b) Cytosine c) Adenine d) Uracil
15. The ribose differs from deoxyribose in having a -OH group instead of -H at \_\_\_\_\_ position.  
a) C-2 b) C-4 c) C-6 d) C-8
16. The \_\_\_\_\_ gives the acid nature to the nucleotides and nucleic acids.  
a) Lactic acid b) Sulphuric acid c) Phosphoric acid d) Malic acid
17. Anemia is defined as a lack of \_\_\_\_\_.  
a) Sodium b) Calcium c) Iron d) Protein
18. Saturated fats come from \_\_\_\_\_.  
a) Plants b) Animals c) Processed foods d) Fungi
19. All of the following are sources of calories except \_\_\_\_\_.  
a) Protein b) Fats c) Vitamins d) Carbohydrates

20. The body's preferred source of energy is \_\_\_\_\_.  
a) Carbohydrates b) Fats c) Vitamins d) Proteins
21. A diet high in \_\_\_\_\_ has been linked to high blood pressure.  
a) Iron b) Protein c) Sodium d) Calcium
22. The most common form of fat circulating in the body is \_\_\_\_\_.  
a) Saturated b) Unsaturated c) Cholesterol d) Triglyceride
23. Which one of the following statements is correct?  
a) Carbohydrates are the body's major energy reserve  
b) When there is no further need for amino acids for growth or repair, they are broken down and used for energy  
c) The carbohydrates glucose, sucrose and fructose are non-glycaemic carbohydrates  
d) In addition to carbon, hydrogen and oxygen, all fats contain nitrogen
24. Which one of the following statements is correct?  
a) Vitamins are inorganic substances required by the body in small amounts for its normal functioning  
b) Vitamins are required in gram amounts each day, whereas trace elements are required in milligram amounts  
c) Carbohydrates, fats and proteins all have structural roles in the body  
d) Excessive intake of one mineral has no effect on the uptake of another
25. \_\_\_\_\_ allows us to determine the number of calories per gram of food.  
a) Calorimeter b) Colorimeter c) Food calorimetry d) Hopes apparatus

**Q.2) Answer the following questions (Any 2)**

(10 Marks)

- a) Explain the chemical reactions of Lipids- 1) Saponification 2) Iodination.  
b) Explain the chemical reactions of Lipids- 1) Ozonolysis 2) Auto-oxidation.  
c) What is Rancidity? Give its significance.  
d) Define the terms- 1) Acid number 2) Saponification number 3) Iodine number

**Q.3) Answer the following questions (Any 2)**

(10 Marks)

- a) Explain the two physical evidences of DNA.  
b) Explain the role of rRNA and tRNA.  
c) DNA gives a colored product when reacted with DPA reagent. Explain why?  
d) Write in brief about following terms: 1. Central dogma 2. Ribozymes

**Q.4) Answer the following questions (Any 2)**

(10 Marks)

- a) Give the nutritional significance of Proteins.  
b) Write a short on Balance diet.  
c) What is BOMB Calorimeter? Explain its working principle.  
d) Why are carbohydrates an important part of our diet? Explain.

**Q.5) Answer the following questions (Any 4)**

(20 Marks)

- a) Write a short note on compound lipids.  
b) State the functions of Glycerophospholipids.  
c) With the help of structures explain pyrimidines and its types.  
d) Explain the types of all bonds involved in formation of nucleic acid.  
e) Define the terms- 1) Calorie 2) BMI 3) Biological value.  
f) Why is water an important part of our diet?

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