Noteskarts Sample Paper-1

Noteskarts Biochemistry & Clinical Pathology Sample Paper

Biochemistry And Clinical Pathology

Long Answers (Answer 6 out of 7) = 6 x 5 = 30

1. Draw the structure of different carbohydrates- Glucose, fructose, sucrose, maltose, galactose.
2. Define terminologies (any five)— Transamination, deamination, ketogenesis, decarboxylation, Ketolysis, glycolysis, lipolysis.
3. Classify the vitamins with example and write their source, function and deficiency disease.
4. Explain about the lipid profile (LDL, HDL, VLDL, Triglyceride, cholesterol) and their clinical significance.
5. Define the chemical constituents of DNA and Watson and crick model.
6. Explain the glycolysis and TCA mechanism.
7. Write the significance of pathology of blood and urine.

Short Answers (Answer 10 out of 11) = 10 x 3 = 30

1. Write the biochemical constituents of the cell.
2. Define the term biochemistry and write their scope in the pharmacy.
3. Qualitative tests and biological role of carbohydrates.
4. Qualitative tests and biological role of protein and amino acids.
5. Qualitative tests and biological role of lipids.
6. Importance of enzyme in biological system and explain factors affecting their activity.
7. Write the differences in nucleosides and nucleotides with example.
8. Explain the different structures of the protein.
9. Diseases related to malnutrition of proteins.
10. Define the amino acid and classify them with examples.
11. Classify the nitrogen bases in the nucleotides.

Objective type questions (Answer all 20)

1.. Which of the following is the primary enzyme responsible for lipolysis?

a) Lipase
b) Protease
c) Amylase
d) Glycosidase

Answer: A) Lipase

2. What is the process of breaking down lipids called?

a) Lipogenesis
b) Lipolysis
c) Liposuction
d) Lipodystrophy

Answer: b) Lipolysis

3. Which of the following describes the process of β-oxidation of fatty acids?

a) Conversion of fatty acids to ketone bodies
b) Conversion of ketone bodies to fatty acids
c) Conversion of fatty acids to acetyl-CoA for energy production
d) Conversion of acetyl-CoA to fatty acids for storage

Answer: C) Conversion of fatty acids to acetyl-CoA for energy production

4. What is the general term used for the breakdown of amino acids in the body?

a) Dehydration synthesis
b) Hydrolysis
c) Transamination
d) Oxidation

Answer: D) Oxidation

5. What is the significance of transamination in amino acid metabolism?

a) It converts an amino acid to a keto acid, allowing it to enter the citric acid cycle for energy production.
b) It removes an amino group from an amino acid, producing ammonia as a waste product.
c) It converts an amino acid to a nucleotide precursor, facilitating DNA synthesis.
d) It adds an amino group to a keto acid, producing an amino acid.

Answer: a) It converts an amino acid to a keto acid, allowing it to enter the citric acid cycle for energy production.

6. Which of the following complexes in the electron transport chain pumps protons across the inner mitochondrial membrane?

a) Complex I
b) Complex II
c) Complex III
d) Complex IV

Answer: c) Complex III

7. Which electron carrier shuttles electrons from Complex III to Complex IV in the electron transport chain?

a) NADH
b) FADH2
c) Coenzyme Q (ubiquinone)
d) Cytochrome c

Answer: d) Cytochrome c

8. In oxidative phosphorylation, how many ATP molecules are typically synthesized per molecule of NADH oxidized?

a) 1
b) 2
c) 3
d) 4

Answer: b) 2

9. Which mineral is required for the synthesis of DNA, energy production, and bone formation?

a) Calcium
b) Phosphorus
c) Iron
d) Sodium

Answer: b) Phosphorus

10. What is the function of iron in the body?

a) Formation of strong bones and teeth
b) Energy production
c) Production of red blood cells
d) Regulation of blood pressure

Answer: c) Production of red blood cells

11. What is the recommended daily intake of calcium for adults?

a) 500 mg
b) 1000 mg
c) 1500 mg
d) 2000 mg

Answer: b) 1000 mg

12. What is the function of chloride in the body?

a) Regulation of blood pressure
b) Formation of strong bones and teeth
c) Maintaining fluid and electrolyte balance
d) Energy production

Answer: c) Maintaining fluid and electrolyte balance

13. What is the primary function of water in the body?

a) Regulating body temperature
b) Transporting nutrients and waste products
c) Cushioning and lubricating joints
d) All of the above

Answer: d. All of the above

14. What is the recommended daily intake of sodium for adults?

a. 1500 mg
b. 2300 mg
c. 3000 mg
d. 5000 mg

Answer: b. 2300 mg

15. What is oral rehydration therapy?

a. A method of replenishing fluids and electrolytes in the body using oral solutions
b. A method of replenishing fluids and electrolytes in the body using intravenous fluids
c. A method of removing excess fluids and electrolytes from the body using diuretics
d. A method of treating dehydration by restricting fluid intake

Answer: a. A method of replenishing fluids and electrolytes in the body using oral solutions

16. What is the purpose of a restriction enzyme?

a) To cut DNA at specific sequences.
b) To join DNA fragments together.
c) To amplify DNA by PCR.
d) To sequence DNA.

Answer: a

17. What is the role of a promoter in gene expression?

a) To bind to RNA polymerase and initiate transcription.
b) To translate the mRNA into a protein.
c) To regulate the stability of the mRNA.
d) To degrade the mRNA.

Answer: a

18. What is a plasmid?

a) A small, circular DNA molecule found in bacteria.
b) A large, linear DNA molecule found in bacteria.
c) A type of virus that infects bacteria.
d) A type of RNA molecule found in eukaryotic cells.

Answer: a

19. Which of the following tests is used to assess liver function?

a) Blood glucose test
b) Complete blood count (CBC)
c) Liver function tests (LFTs)
d) Electrolyte panel

Answer: c) Liver function tests (LFTs)

20. Which of the following is a function of the kidney?

a) Production of bile
b) Regulation of blood sugar levels
c) Regulation of blood pressure
d) Production of insulin

Answer: c) Regulation of blood pressure

21. Which of the following is NOT a normal constituent of urine?

a) Urea
b) Creatinine
c) Glucose

d) Bilirubin

Answer: d) Bilirubin

22. What is the normal range for pH in urine?

a) 4.0-5.5
b) 6.0-7.5
c) 8.0-9.0
d) 10.0-11.0

Answer: b) 6.0-7.5

23. Which of the following abnormal erythrocytes is associated with sickle cell disease?

a) Schistocytes
b) Spherocytes
c) Target cells
d) Sickle cells

Answer: d) Sickle cells