I. Choose the correct answer: (10x2= 20 Marks)

1. Serum amylase increases in the following condition.
   a. Burns
   b. Hepatitis
   c. Pregnancy
   d. Both A and B

2. Major Histocompatibility antigens are present on this
   a. Erythrocyte
   b. Leukocytes
   c. Stem Cell
   d. Thrombocytes

3. Tyrosine is involved in synthesis of the following important biological compounds.
   a. Epinephrine
   b. Thyroid Hormones
   c. Melanin
   d. All of the above

4. What is the percentage of albumin as part of total proteins in blood?
   a. 7%
   b. 38%
   c. 54%
   d. 12%

5. Which is the most common specimen collected in suspected cases of lower respiratory infections?
   a. Saliva
   b. Sputum
   c. Breath
   d. Throat Swab

6. In ECG, QRS complex indicates:
   a. Atrial depolarization
   b. Ventricular repolarization
c. Atrial repolarization  
d. Ventricular depolarization

7. The cycle involving synthesis of glucose from lactose in liver is known as.
   a. Glycolysis  
c. HMP Shunt Pathway
   b. Cori’s cycle  
d. TCA Cycle

8. An individual who has received all three doses of hepatitis B vaccine and who has never had hepatitis B virus (HBV) infection would be expected to have which of the following serologic marker(s)?
   a. HBsAb  
c. HBsAg
   b. HBeAb  
d. HBsAg and HBsAb

9. Sleep cycle is maintained by this hormone of pineal gland.
   a. Melanin  
c. Melatonin
   b. Serotonin  
d. ACTH

10. The inhibition of glycolysis by oxygen is known as.
   a. Pasteur effect  
c. Inhibition effect
   b. Crabtree effect  
d. Anaerobic effect

SECTION- B  
(50 Marks)

II. Explain the following terms:  
(5x1= 5 Marks)

1. Cyanosis
2. Feedback regulation
3. Malaise
4. Syncope
5. Wernicke Korsakoff syndrome

III: Name the following agent/ disorder/disease.  
(10x1 Marks)

1. Parsi community is deficient in this enzyme leading to their increased susceptibility to haemolytic anaemia. Name the enzyme.
2. Indication of presence of anti-citrullinated peptide antibody in blood along with low ESR
3. Positive Mantoux test
4. Fecal occult blood test with sloughed off epithelial cells in stool may indicate this disorder.
5. C-peptide deficiency leads to this disorder
6. Synthesis of urea occurs in this organ.
7. Excess hormonal production by the pituitary gland produces this disorder with abnormal growth in children.
8. Respiratory alkalosis is caused by decrease in plasma concentration of this substance.
9. A 30-year-old woman has non-bloody diarrhoea for the past 14 hours. Which organisms are likely to cause this illness?
10. Carbohydrate associated with flatulence caused by ingestion of leguminous seeds.

IV: State whether the following statements are true or false, if false give the reason
(5x1=5 Marks)

1. Severe exercise cannot cause haematuria.
2. Lingual lipase activity starts in mouth
3. Gram negative organisms have extensively crossed linked peptidoglycan.
4. Alkaptonuria occurs due to deficiency of the enzyme alanine oxidase.
5. pH of pancreatic juice is 7.5

V. Match the following: (5x1=5 Marks)

1. High serum phosphate levels  a. Wheat
2. ADH  b. Vasodilation
3. Lysine  c. Aquaporin 2
4. NO  d. Dengue
5. Aedes aegypti  e. Large doses of cod liver oil

VI. Fill in the Blanks (6x1 = 6 Marks)

- Cirrhosis of liver causes reversal of ______________ratio.
- ______________ from the atria of the heart helps maintain blood volume.
- Negative nitrogen balance is a condition in which the nitrogen output is __________than output.
- Stepladder fever is caused by______________.
- ______________ is an adipocytokine antagonist to insulin.
- The utilization of light energy to drive the synthesis of ATP is called as______________.

VII. Expand the following and give one significance of the same: (5x2 = 10 Marks)

1. FADH  4. BCG
2. PYY (3-36)  5. THF
3. IGF
VIII. Give any two differences between: 

1. Slow twitch and Fast twitch muscle fibers 
2. Endotoxin and Exotoxin 
3. Soluble and insoluble fibre 

SECTION - C

IX. Answer any two questions 

1. A. Describe the Renin – Angiotensin – Aldosterone pathway 
   (8 Marks)

   B. Explain the digestion and absorption of proteins. 
   (7 Marks)

2. A. Write a short note on role of microorganisms in nosocomial infections. 
   (5 Marks)

   B. Outline the factors leading to food spoilage. Discuss the conditions that favour microbial 
   spoilage of food. 
   (10 Marks)

3. A. Give an overview of biosynthesis of cholesterol (no structures). 
   (5 Marks)

   B. Write a short note on functions of phospholipids. 
   (5 Marks)

   C. Give a brief on four major lipoproteins in blood serum. Discuss the factors affecting the 
   levels of each in the blood stream. 
   (5 Marks)

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