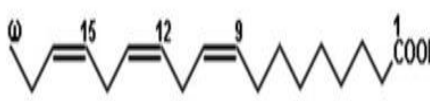
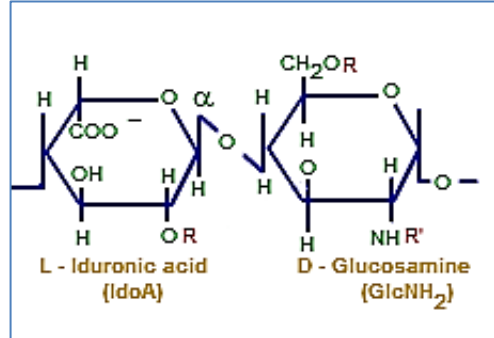
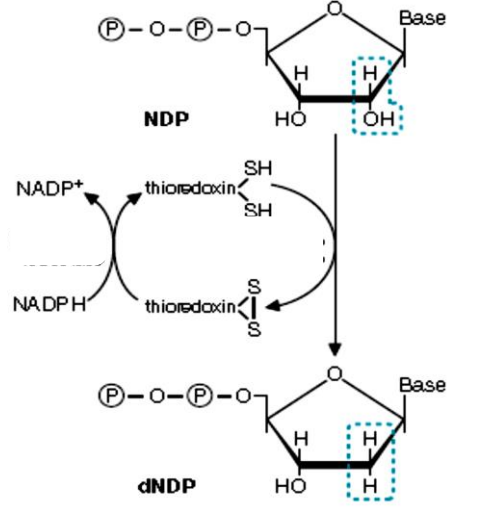
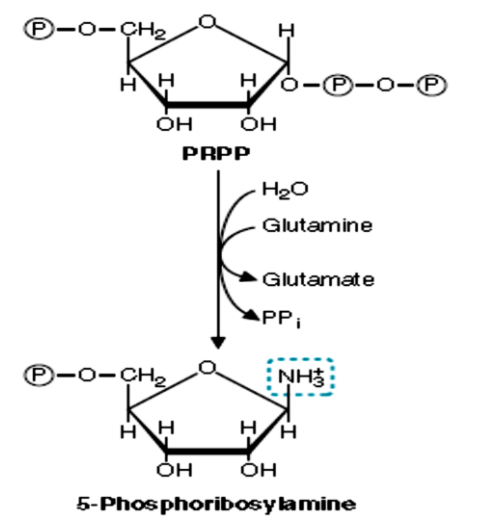


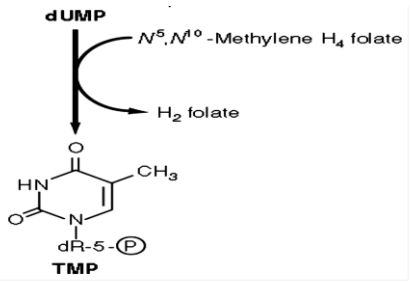
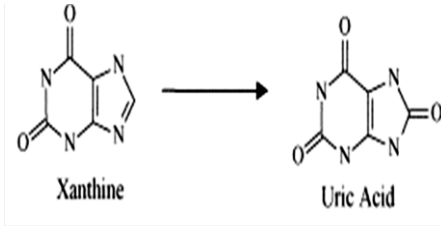
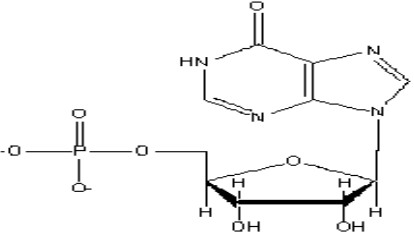
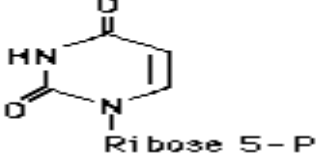
**QUESTION ONE: (18 X 0.5= 9 marks, 20 min)**

**A- Write the scientific term for each of the following descriptions:**

Description	Terms
1. The reagent that is used to disrupt the hydrophobic interaction holding a protein structure.	
2. A protein that is composed of A & B polypeptide chains linked by interchain and intrachain disulfide bridges	
3. An essential basic amino acid	
4. It is a homopolymer of $\alpha$ -glucose that stored in plants.	
5. The type of polypeptide chain that has mutant HbS	
6. A type of protein that plays a structural role and consists of fibrillar structure which is mechanically strong.	
7. A type of amino sugar that constitute the chondroitin of cartilage.	
8. A synthetic sweetener which is one-hundred and sixty times as sweet as sucrose.	
9. The major constituent of lung surfactant	
10. The constituent of hydrophobic core of chylomicrons	
11. The apoprotein that activates lipoprotein lipase enzyme to hydrolyze TGs.	
12. The type of phospholipase that catalyzes the release of arachidonic acid from phospholipids.	
13. A nine-carbon sugar which is a major constituent of both glycoproteins and gangliosides.	
14. An enzyme that cleaves the $\alpha$ -(1 $\rightarrow$ 6) bond between two glucose units.	
15. A type of lipoprotein that is secreted by liver and rich in TGs.	
16. A hormone that is secreted by the intestine and stimulates the gallbladder to release bile acids.	
17. An inhibitor of xanthine oxidase which used for treatment of gout	
18. A disease that results from deficiency of UMP synthase activity.	

**B- Complete the following table as indicated: (6 Marks, 10 min)**

	
<p>1- The name of the above structure is.....</p> <p>2- The function of this compound is .....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>1- The name of the above structure is.....</p> <p>2-The function of this compound is .....</p> <p>.....</p> <p>.....</p> <p>.....</p>
	
<p>The enzymes used for catalysis the above reaction are .....</p>	<p>The enzyme used for catalysis the above reaction is.....</p>

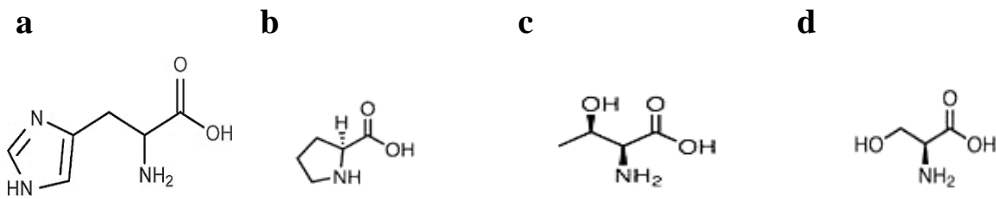
 <p align="center"><b>dUMP</b> <b>dTMP</b></p>	 <p align="center"><b>Xanthine</b> → <b>Uric Acid</b></p>
<p>The enzyme used for catalysis the above reaction is.....</p>	<p>The enzyme used for catalysis the above reaction is .....</p>
	 <p align="center"><b>Ribose 5-P</b></p>
<p>The name of the above structure is..... This compound is a precursor for biosynthesis of .....</p>	<p>The name of the above structure is .....</p> <p>This compound is a precursor for biosynthesis of .....</p>

### QUESTION II:

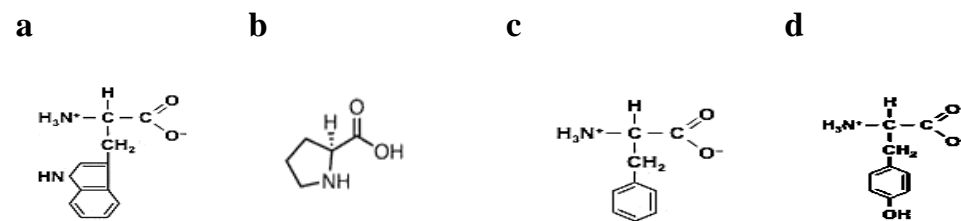
**Choose Only one correct answer and mark in the following answer sheet:**  
**(20x0.5=10 Mark, 25 min)**

	A	B	C	D		A	B	C	D
1.					11				
2.					12				
3.					13				
4.					14				
5.					15				
6.					16				
7.					17				
8.					18				
9.					19				
10.					20				

1- Which the following structures indicates histidine amino acid:



2- Which the following structures indicates a polar aromatic amino acid:



3- Which of the following refers to protein denaturation?

- It is resulted in destruction of H- and disulfide bonds
- It causes hydrolysis of peptide bonds
- It causes loss of polarity of acidic amino acids
- It causes folding and attraction of the protein's secondary structures

4- Non-Protein amino acids are

- Ornithine
- $\beta$ -alanine
- $\gamma$ -amino butyric acid
- All of these

5- Which type of protein represents the conservative changes in protein structures?

- Amyloid proteins
- Pig and human Insulins
- Collagen
- Non-infective prion protein

6- The reduction of a disulfide bond in proteins by 2-mercaptoethanol forms:

- $\text{SO}_3^-$  groups
- Free sulfhydryl groups
- Cysteic acid
- Hydrophobic interaction

7- Individuals with sickle cell trait are susceptible to:

- Increased hemolytic crisis
- Low chance of infection with *Plasmodium falciparum*
- Chronic hemolytic anemia
- Both a & b

**8- The noninfectious form of PrP is:**

- a. A change in protein structure from  $\alpha$ -helices to  $\beta$ -sheets
- b. Not present normally on neurons and glial cells of brain
- c. Similar to the primary structure of the infectious form
- d. It is a fibrous protein

**9- An epimer of glucose at C2 is:**

- a. Mannose
- b. Lactose
- c. Galactose
- d. Fructose

**10-The invert sugar is formed after hydrolysis of:**

- a. Lactose
- b. Galactose
- c. Sucrose
- d. Starch

**11-Gluconic acid is:**

- a. Sugar acid where aldehyde group at C1 is oxidized to carboxylic group
- b. Sugar lacks an aldehyde group at C1
- c. Sugar lacks a ketone group at C1
- d. Sugars that lacks oxygen at C2

**12-All of the following is correct regarding proteoglycans EXCEPT:**

- a. They are constituents of connective tissues.
- b. They are capable of holding large quantities of water
- c. They have negative charges
- d. Hyaluronic acid, chondroitin sulfate immunoglobulins are proteoglycans.

**13-Which of the followings is correct regarding PUFA?**

- a. PUFA have only one double bond
- b. Linoleic acid, oleic acid and linolenic acid are PUFA
- c. Rancidity causes oxidative cleavage of the double bonds in PUFA
- d. They are normally synthesized in the body

**14-In humans, a dietary essential fatty acid is:**

- a. Palmitic acid
- b. Oleic acid
- c. Stearic acid
- d. Linoleic acid

**15-Regarding individuals with lactase-deficiency, which is incorrect?**

- a. They have osmotic diarrhea
- b. Intestinal bacterial fermentation of maltose sugar releases large volumes of CO<sub>2</sub> and H<sub>2</sub> gas.
- c. Measurement of hydrogen gas in the breath is a reliable test for diagnosis.
- d. Treatment with lactase pill prior to eating is necessary.

**16-Fructose absorption by intestinal mucosal cells requires:**

- a. Sodium-independent GLUT-5
- b. Sodium-dependent GLUT-5
- c. Facilitated GLUT-2
- d. Active transporter GLUT-2

**17-SCID disease resulted from the deficiency of the following enzyme:**

- a. PRPP synthetase
- b. Adenosine deaminase
- c. Hypoxanthin oxidase
- d. Glutamine amidotransferase

**18-Hyperuricemia results from:**

- a. Increased activity of PRPP synthetase
- b. Increased excretion of uric acid
- c. Genetic defects in PRPP synthetase
- d. Increased activity of hypoxanthin oxidase

**19-All of the followings are correct regarding purines biosynthesis**

**EXCEPT:**

- a. PRPP synthetase is allosterically inhibited by ADP and GDP
- b. It requires 8 molecules of ATP
- c. In salvage pathway HGPRT catalyzes formation of GMP
- d. Glutamine, aspartate, and glycine amino acids are used for synthesis

**20-Which of the following enzymes is important for pyrimidine biosynthesis?**

- a. Glutamine phosphoribosyl amidotransferase
- b. CPSII
- c. Xanthine oxidase
- d. Both b & c

**Good Luck**