

March 1 at 9:09pm

Bio202 11am

3 functions of cAMP.

- Acts as **second messenger** in the cell

- It has role in **glycogen metabolism**

- $\uparrow$  cAMP,  
 $\uparrow$  **glycogenolysis**

- $\uparrow$  cAMP  $\uparrow$  TAG  
**metabolism**

- $\uparrow$  cAMP  $\uparrow$  **lipolysis** marks

2.how banaspati ghee is produced from oil. 2 marks

3. hydrogenation of fats. 3 marks

4.interactions in DNA. 5 marks

The purine and **pyrimidine bases** are **hydrophobic** and relatively insoluble in water at the nearneutral pH of the cell.

- **Hydrophobic stacking**

interactions in which bases are positioned with the planes of their rings parallel

- Hydrophobic stacking are an important interaction between bases in nucleic acids.
- The stacking also involves a combination of van der Waals and dipole-dipole interactions between the bases
- Hydrophobic stacking are an important interaction between bases in

nucleic acids.

- The stacking also involves a combination of van der Waals and dipole-dipole interactions between the bases

The most important functional groups of pyrimidines and purines are

- ring nitrogens,
- carbonyl groups, and
- exocyclic amino groups.

- The most important hydrogen-bonding patterns are those

defined by James D. Watson and Francis Crick, in which

- A bonds specifically to T (or U) and

- G bonds to

- These two types of base pairs predominate in double-stranded

DNA and RNA.

5. sp **onification and its end products**. 3 marks

6. waxes its types and properties. 10 marks

Esters of fatty acids with higher molecular weight monohydric alcohols.

(having one OH group)

A second group of

neutral lipids that are  
of physiological  
importance

- **Properties of waxes**

- Waxes are insoluble in water, but
- soluble in fat solvents and are
- negative for acrolein test.
- very resistant to

## Rancidity

- Waxes are not easily hydrolyzed as the fats
- and are indigestible by lipases (enzymes responsible for fat digestion in body)

- Thus they are of **no nutritional value**

- Waxes are of two types:

- True waxes
- Other Waxes or Non true waxes or Wax-like compounds

## **Lipids • 2. Other Waxes or Non true waxes**

- include esters of:
- Cholesterol
- Vitamin A
- Vitamin D

### **1. True Waxes**

- **Bees-wax** is secreted by the honeybees that use

it to form the **co Li**

- **2.Spermaceti**

- is a wax that is most often found in the head cavities of the **sperm whale. id**

7.enzymes and its classification. 10 marks

- International Union of Biochemists (IUB) developed an unambiguous system of enzyme nomenclature in which each enzyme has a

- unique name and

- codenumber

Group of Enzyme	Reaction Catalysed	Examples
1. Oxidoreductases	Transfer of hydrogen and oxygen atoms or electrons from one substrate to another.	Dehydrogenases Oxidases
2. Transferases	Transfer of a specific group (a phosphate or methyl etc.) from one substrate to another.	Transaminase Kinases
3. Hydrolases	Hydrolysis of a substrate.	Estrases Digestive enzymes
4. Isomerases	Change of the molecular form of the substrate.	Phospho hexo Isomerase, Fumarase
5. Lyases	Nonhydrolytic removal of a group or addition of a group to a substrate.	Decarboxylases Aldolases
6. Ligases (Synthetases)	Joining of two molecules by the formation of new bonds.	Citric acid synthetase

8. 2 examples of unnatural pyrimidine bases. 2 marks.

MCOs come from CSS exams 😊 mujhy nhi aty thy mostly

1. Role of nucleotide in regulatory functions.. 5

2. Natural sources of waxes. 3

- Waxes are widely distributed in nature such as the secretion of certain insects as;



- **Bees-wax,**
- **Spermaceti** of the sperm whale

Waxes also form protective coatings of the skins and furs of animals and

- leaves and fruits of

Plants

## **Cholesterol**

**esters:** Lanolin (or

wool fat)

3. Types and properties of waxes. 10
4. Types of cyclic nucleotides. 2
5. Enzymes and their classes. 10
6. Properties of nitrogenous bases. 5

## **Nitrogenous Bases**

- **Aromatic:** The

Nitrogen containing bases are **aromatic** i.e. they have **alternate**

double bonds

## Heterocyclic:

- They are heterocyclic i.e. structures that contain other atoms in addition to carbon, such as nitrogen in the ring structure

The six-atom rings of purines and pyrimidines are numbered in opposite directions...

**Weak Bases:** Purines or pyrimidines with an -NH<sub>2</sub> group are weak

Bases

## Functional Groups:

c

## Hydrophobicity:

- The purine and pyrimidine bases are hydrophobic and relatively insoluble in water at the near neutral cell pH

- **Stacking Interaction:**

Hydrophobic stacking interactions in which two or more bases are positioned with the planes of their rings parallel (like a stack of coins) are one of two important modes of interaction between bases in nucleic acids

- **Base stacking** helps to minimize contact of the bases with water, and these interactions are very important in **stabilizing the threedimensional structure** of nucleic acids.

- **UV light absorbance:** The conjugated **double bonds** of purine and pyrimidine derivatives **absorb ultraviolet lights**

- The atoms in the rings of the **bases** are numbered

- 1 to 6 in pyrimidines &

- 1 to 9 in purines

## Phosphodiester Bond

- When two or more nucleotides combine together a phosphodiester bond is formed

7. Numbering of carbons of pentose sugar in nucleotides and nucleosides. 2

- In the pentoses of nucleotides and nucleosides the carbon numbers are given a prime ( ' ) designation to distinguish them from the numbered atoms of the nitrogenous

The carbons in the

**pentose** are  
numbered **1' to 5'**.

- Numerals with a prime (e.g., 2' or 3') distinguish atoms of the sugar from those of the heterocycle

Thus, when the **5' – carbon** of a nucleoside (or nucleotide) is referred to, **a carbon atom in the pentose**, rather than an atom in the base, is being specifiss

8..

BIO202 11am 1 marchs

1.PK1 of lysine is...

Lysine 2.18

2. Simplest amino acid.

- A simple amino acid

e. g. **glycine** is a diprotic acid when fully protonated

- This means that it has two groups, the COOH and the NH<sub>3</sub>

+

group that can yield protons

3. Carbohydrates and lipids formed..

4. Pyrimidins are.

tc

5. Guanine bonds with.. G3=C

6. Tripple bond found in..

1. Enzyme catalyze joining two molecules... Ligase

2. Optimum pH of pepsin... 7

**Pepsin**

**1.5 - 1.6**

3. Hsp70 b ans tha ik ka. PROTEIN IN NETWORKING

4. RNA is working copy of DN

bile salt is secreted by \_\_\_\_\_ and stored in \_\_\_\_\_.. (liver, gallblader)

1. Waxes and its type and its characteristic
2. enzymes and its classification
3. name the pentagon sugars in nucleic acid and its characteristic.
4. Role of nucleotide energy currency in cell
5. Simple lipids and types

## 1. Simple lipids:

Esters of fatty acids with various alcohols

These contain:

- a. Fats (and Oils) and
- b. Waxes.

s a. **Fats:** Esters of fatty acids with glycerol (**Oils** are fats in the liquid state)

b. **Waxes:** Esters of fatty acids with higher molecular weight monohydric alcohols.



(having one OH group)

6. three functions of pyrimidines and purines.

7. differentiate between adenine and guanine

- Both DNA and RNA

contain the same

purine bases:

- Adenine (A)

- Guanine (G)

- Adenine when combines with pentose the structure is known as Adenosine or deoxyadenosine

- Guanine when combines with pentose the structure is known as Guanosine or deoxyguanosine

- Adenine is 6-aminopurine
- Guanine is 2-amino, 6-hydroxypurine
- 

vBio202

What are enzymes ? Classification? 10 marks

Wax ?? It's type and properties ?

Name 2 unnatural pyrimidines ?

Nucleotide regulation ?

How can make bhaspati ghee

2 long 10 marks

what is wax ? describe in detail

what is enzyme ? also describe its functional groups

5 marks

what is primary DNA

3 marks

what is rancidity ? and what is hydroxyl and oxidize rancidity

baki bhul gay 😞

2 long 10 marks

what is wax ? describe in detail

what is enzyme ? also describe its functional groups

5 marks

what is primary DNA

3 marks

what is rancidity ? and what is hydroxyl and oxidize rancidity

baki bhul gay 😞

vBio202 at 4:30 pm

1)What is rancidity?what are the factors that effect the rancidity of fats?5 marks

2)Primary structure of DNA?5marks

3)What are sterols?give 1 example of sterol present in animal tissue?3 marks

4)Differentiate b/w the structure of thymine and uracil?2marks

5)Write 3 functional group of purine and pyrimidine?3 marks

## Functional Groups:

The most important functional groups of pyrimidines and purines are

- ring nitrogens
- carbonyl groups
- exocyclic amino groups

6) What are waxes? give their properties and also explain its types? 10 marks

7) What are enzymes? explain the types of enzymes? 10 marks

8) Difference b/w nucleotide and nucleoside? 2 marks

Nd mcqs were mostly from mid term tpcs and also from end tpcs

Keratin kis main presnt hy (hoof hair nails)

Palmitic acid main carbons kitny hty hyn

15 16 18

Polysachride ki type puchi thi

Fructose sucrose lactose cellulose

At 25°C kw value kia hti hy

$1 \times 10^{14}$  or  $1 \times 10^{-7}$

Bile k tpc se b ta k kahan se niklta hy or kahan store hta hy

Rhinoceros k horn kis sw bny hty hyn

Enzyme kinetics py konsa factor effect krta hy

Michelus mentn eq kis liye hti hy

Competitive non competitive inhibitor

Flhl itny he yaad aye hyn...or jo yaad aye wo share kar dungy...

io202 (biochemistry)

1: Describe the role of nucleotide as a energy currency of the cell??

2: What are simple lipid? give two types of simple lipid??

3: Name three functional group of purines and pyrimidines??

4: Two example of unnatural pyrimidine bases??

5: Diff between nucleotide and nucleoside??

6: What is waxes?? explain in detail?  
7: what is enzyme explain in detail?

5 Comments

1515

Downloooooo

Bio202 at 4:30 pm

1: Describe the role of nucleotide as a energy currency of the cell??

**2: What are simple lipid? give two types of simple lipid??**

A simple lipid is a fatty acid ester of different alcohols and carries no other substance. These lipids belong to a heterogeneous class of predominantly nonpolar compounds, mostly insoluble in water, but soluble in nonpolar organic solvents such as chloroform and benzene.

example: fats and oils.

**3: Name three functional group of purines and pyrimidines??**

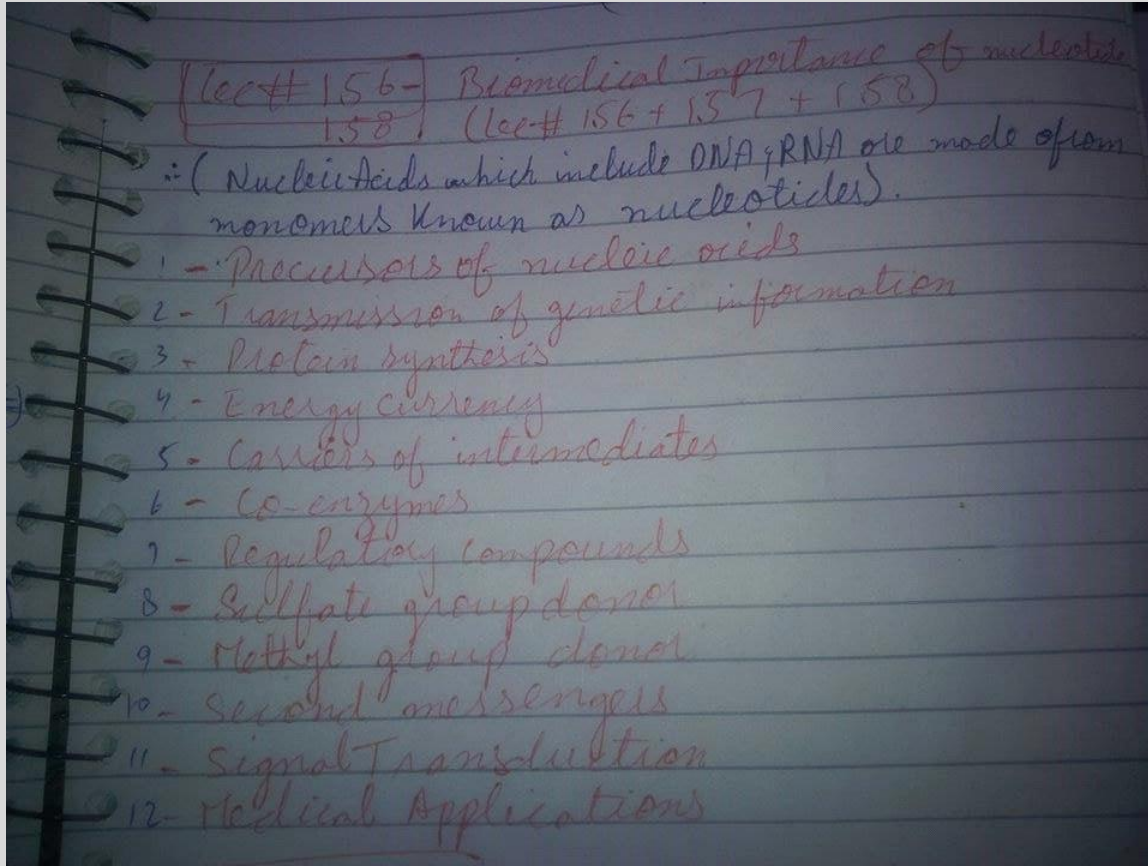
nitro group

Exocyclic amino group

Or 3rd ha carbonyl group

**4: Two example of unnatural pyrimidine bases??**

fluorouracil or Azc



#### 6: What is waxes?? explain in detail?

Waxes are a diverse class of organic compounds that are

**hydrophobic,**

**malleable** solids

**near ambient** temperatures

. They include higher **alkanes and lipids,**

typically with melting points above **about 40 °C** (104 °F),

melting to give **low viscosity liquids.**

Waxes are **insoluble in water** but soluble in organic, nonpolar solvents.

Natural waxes of different types are produced by plants and animals and occur in petroleum.

**Animal waxes**[edit]



The first fatty acid produced during fatty acid synthesis in the body and the precursor to longer fatty acids is \_\_\_\_\_.

Linoleic acid

Arachidonic acid

Oleic acid

Palmitic acid

#Arachidonic\_acid

Physical and Chemical Properties of Fatty Acids are due to their \_\_\_\_\_.

length of hydrocarbon chain and degree of saturation

length of polypeptide chain and hydrocarbon atoms

name of fatty acid

side chain attached to all hydrogen atoms

None

#length\_of\_hydrocarbon\_chain\_and\_degree\_of\_saturation

Amphipathic means that:

one end of the molecule is negative, the other is positive

one end of the molecule is hydrophobic, the other hydrophilic

one end of the molecule is carbohydrate, the other is protein

All

#All

In Poly unsaturated fatty acids, the carbon of the methyl group is known as \_\_\_\_ carbon.

Alpha

Omega

Mu

Bravo

#Omega

Fats are the \_\_\_\_\_ of fatty acids and glycerol.

Esters'

Ether

Isomer

Tautomer

**Bakiii picssss**

Total questions 48

MCQs:40

1.Explain numbring of carbon atoms in nitroginus bases. 2 marks

2.Two properties of glycerol trinitrate. 2 marks

3.name of Three pyrimidine bases.3 marks.

4.explain bees wax and spermaceti.3 marks

5.write five Properties of nitrogenous bases.5 marks

6.what is Rancidity?name and factors 5 marks

7. What is waxes?write detail Classification with examples.10 marks

8. what is enzymes? detail note on diifrent types of enzymes with exampls. 10 marks

Like · Reply · 2 · February 25 at 8:33pm



Maria Chouhdry Bio202 at 4:30 pm

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Fructose sucrose lactose cellulose  
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 $1 \times 10^{-14}$  or  $1 \times 10^{-7}$   
Bile k tpc se b ta k kahan se niklta hy or kahan store hta hy  
Rhinoceros k horn kis sw bny hty hyn  
Enzyme kinetics py konsa factor effect krta hy  
Michaelis Menten eq kis liye hti hy  
Competitive non competitive inhibitor

Fhl itny he yaad aye hyn...or jo yaad aye wo share kar dungy...

Like · Reply · February 25 at 11:07pm



Emma Scarlet 😊

Like · Reply · February 26 at 6:42am



Maria Choudhry MCOs: 40

1. Explain numbering of carbon atoms in nitrogenous bases. 2 marks

2. Two properties of glycerol trinitrate. 2 marks

3. Name of three pyrimidine bases. 3 marks

4. Explain bees wax and spermaceti. 3 marks

5. Write five properties of nitrogenous bases. 5 marks

6. What is rancidity? Name and factors. 5 marks

7. What is wax? Write detail classification with examples. 10 marks

8. What are enzymes? Detail note on different types of enzymes with examples. 10 marks

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