[March 1 at 9:09pm](https://www.facebook.com/groups/vubiologists/permalink/1428730057198315/?match=YmlvMjAy)

Bio202 11am  
 **3 functions of cAMP.**

• Acts as second

messenger in the cell

• It has role in

glycogen metabolism

• ↑cAMP,

↑glycogenolysis

• ↑cAMP ↑TAG

metabolism

• ↑cAMP ↑ lipolysismarks  
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.sponification 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

**Lipid s** • **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**

**Lipid**

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 nameand

•codenumber

•s

8. 2 examples of unnatural pyrimidine bases. 2 marks.  
MCQs come from CSS exams https://www.facebook.com/images/emoji.php/v7/f9f/1/16/1f61b.png:-P 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 –

NH2 group are weak

Bases

**Functional Groups:**

c

**Hydrophobicity:**

• The purine and

pyrimidine bases are

hydrophobic and

relatively insoluble in

water at the nearneutral

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 NH3

+

group that can yield

protons **3. Carbohydrates and lipids fo**rmed..  
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 ts characteristic**  
2.**enzymes and its classfication**  
3.name the pentagon sugers in nucleic acid and its characteristic.  
4**.Role of nucleutide energy currency in cell**  
5.**Simple lipide 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 primidines and purines.  
**7.differentatiate between adenini 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 ?   
Neucleotide regulation ?  
**How can make bnaspati ghe**

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 rancitity   
baki bhul gay https://www.facebook.com/images/emoji.php/v7/fcb/1/16/1f641.png

2 long 10 marks   
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vBio202 at 4:30 pm  
1)What is ranicidity?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 or 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 presrnt hy (hoof hair nails)  
Palmitic acid main carbons kitny hty hyn   
15 16 18   
Polysachride ki type puchi thi  
Fructse sucrose lactose cellulose  
At 25°C kw value kia hti hy  
1×10^14 or 1×10^-7   
Bile k tpc se b ta k kahan se niklta hy or kahan store hta hy  
Rhinocerous k horn kis sw bny hty hyn   
Enzyme kinetics py konsa factor effect krta hy  
Michelus mentn eq kis liye hti hy   
Cmptetetive non competitive inhibitor

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

io202 (biochemstry)  
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?**

Top of Form

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Bottom of Form

Dowwnloooood

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??**

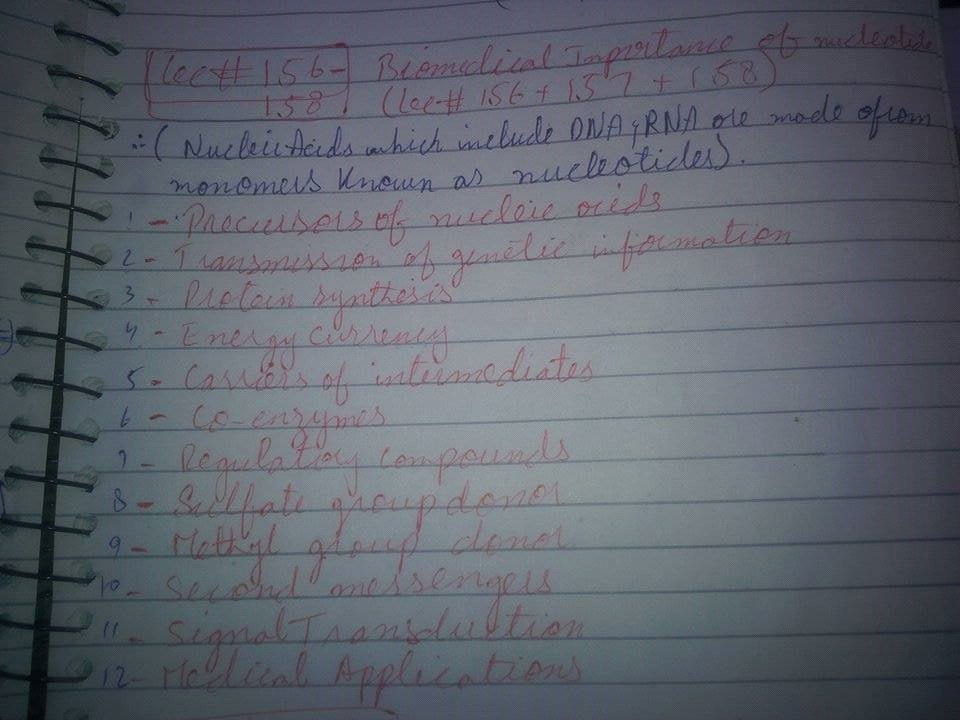
nitro group

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 most commonly known animal wax is beeswax,**

**but** other insects secrete (release) waxes,

A major component of the beeswax used in constructing **honeycombs** is the

ester **myricyl palmitate** which is an ester of **triacontanol a**nd **palmitic acid.**

Its melting point is **62-65 °C**.

**Spermaceti** occurs in large amounts in the **head oil** of the **sperm whale.**

**One of its main constituents is cetyl palmitate, another ester of a fatty acid and a fatty alcoho**l.

**Lanolin** is a wax obtained from **wool,** consisting of esters of sterols

Quizzzzzzzzzzzzzzzzzzzzzzzzzzzzzzz

BIO202 Quiz 2 with Answers  
Fatty acids produce alkyl alcohols by \_\_\_\_\_\_\_\_\_\_ of carboxylic group.  
Esterification  
Oxidation  
Reduction  
None  
#Reduction

Poly unsaturated fatty acids (like alpha-linolenic acid) with a double bond between C-3 and C-4 are called \_\_\_\_\_\_\_\_ fatty acids  
omega-4  
omega-3  
omega-3,4  
None of given  
#Omega3

Hydrogenation of fatty acids leads to hardening of natural oils and formation of margarine because:Hydrogenation of fatty acids leads to hardening of natural oils and formation  
(Missed)

Fatty acids are carboxylic acids in which length of \_\_\_\_\_\_\_\_\_\_\_ chains range from 4 to 36 carbons.  
Hydrocarbon  
Polycarbon  
Monosaccharide  
Disaccharides  
#Monosaccharide

1. 18-carbon oleic acid, with one double bond is abbreviated as\_\_\_\_\_\_\_\_\_\_  
18:0  
18-0  
18-1  
18:1  
#18:1

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

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[**Maria Chouhdry**](https://www.facebook.com/dua.skandr?fref=ufi) Bio202 at 4:30 pm  
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15 16 18   
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Fructse sucrose lactose cellulose  
At 25°C kw value kia hti hy  
1×10^14 or 1×10^-7   
Bile k tpc se b ta k kahan se niklta hy or kahan store hta hy  
Rhinocerous k horn kis sw bny hty hyn   
Enzyme kinetics py konsa factor effect krta hy  
Michelus mentn eq kis liye hti hy   
Cmptetetive non competitive inhibitor  
  
Flhl itny he yaad aye hyn...or jo yaad aye wo share kar dungi...

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