



# UNIVERSITY OF BALOCHISTAN, QUETTA.

Code No.

Name of Examination \_\_\_\_\_

Group \_\_\_\_\_ Evening / Morning \_\_\_\_\_

Subject. \_\_\_\_\_

Paper. \_\_\_\_\_

Date. \_\_\_\_\_

Number of Continuation Sheets attached (if enclosed)

Grand total (in figures) \_\_\_\_\_

Grand total (in Words) \_\_\_\_\_

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Question No.	Marks Obtained
1	
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Grand Total	

Name and Signature of Examiner

Name and Signature of Checker / Assistant

Serial No. Z 05452

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Roll No. in words  
Fifty Two Thousand Eight Hundred & Fifty one.

Code No.

Name of Examination. B. Sc Annual 2018

Group 1<sup>st</sup>

Subject ZOOLOGY 'A'

Paper A

Date 29<sup>th</sup> September 2018

Examination Centre  
Govt. Girls Degree Uq Qla Cantt. Centre # 2

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UNIVERSITY OF BALOCHISTAN



## SECTION-I.

Q. NO. 2 (a) Explain structure & function of Golgi bodies?

Answer:- GOLGI BODIES:-

Golgi bodies are one of the organelles present in cell of eukaryotes. These are membrane bounded and perform major functions. The structure and function of golgi apparatus is described as follows:-

STRUCTURE OF GOLGI BODIES:-

Golgi bodies are like the stack of pita bread. These are membranous vesicles which are bound over one another in the form of stack. These are like coins over one





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another, having space or intermembrane space between the vesicles.

Cisternae :-

The network of stacks in golgi apparatus over one another are called cisternae. These are similar as cisternal of endoplasmic reticulum.

POLES OF GOLGI APPARATUS :-

The Golgi bodies have two poles or regions in their structure. These are =

1- Cis-face (immature face) :-

The 'convex-face' or immature face of golgi body is called cis-face. It is the site where transfer vesicle enter for further modification from endoplasmic

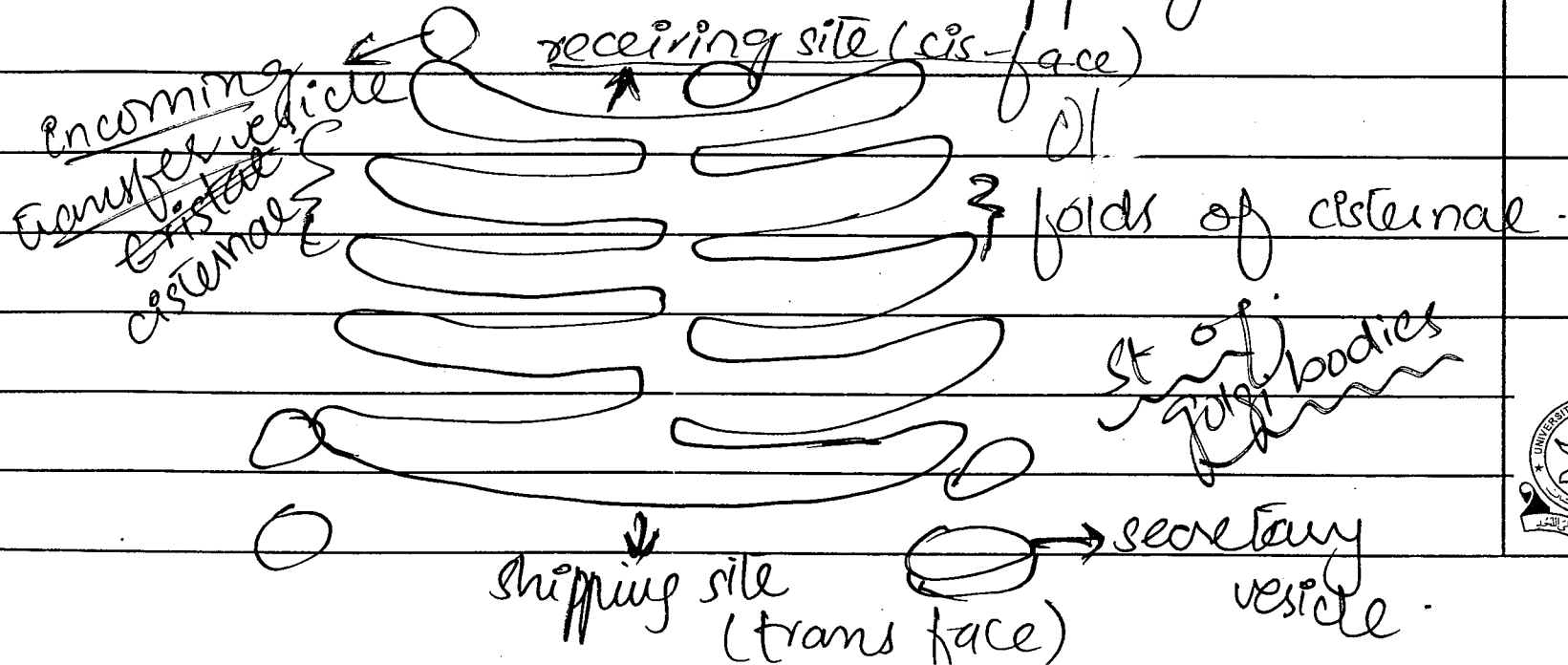




reticulum. It is also called 'receiving-site'.

2- Trans-face (mature-face):-

The region of golgi bodies which is concave-shaped is called 'trans-face' or 'mature-face'. It is the site from where transfer vesicle after modification, now called secretory vesicle detaches from golgi apparatus. Therefore it is also known as 'shipping-site'.





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## FUNCTIONS OF GOLGI BODIES:-

Golgi bodies play a major role in modification of proteins or other products synthesised by endoplasmic reticulum. "These are called dictyosomes in plant cell."

### ⇒ MODIFICATION OF CARBOHYDRATES OR PROTEINS:-

It involves following steps =

#### 1. Entrance into Golgi body:-

The transfer vesicle from endoplasmic reticulum enters into golgi body for further modification from cis-face.

#### 2. Addition of sugar:-

The oligosaccharide entered into golgi body has certain monomers unit that should be modified. In golgi body some of





monomers are removed and others are substituted in place of it.

### 3- Addition of lipid:-

Some lipid molecules are also modified, or added to transfer vesicle.

### 4- Removal of water:-

Water is removed from the vesicle as course of modification.

### 5- Packing in form of "Secretory Vesicle":-

After all above processes the vesicle is modified further. Membrane of golgi bodies surround the modified product. It is now called 'secretory vesicle'.

### 6- Removal / Detachment of secretory vesicle:-

The secretory vesicle





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is now ready to detach from the golgi apparatus. The secretory vesicle is now termed as lysosome. There are two possibilities for the vesicle to go further after detachment, these are:

(i) It may either migrate to outside of cell, through cell membrane ~~or~~ by the process of exocytosis.

Exocytosis = Removal of solid particle from cell is called exocytosis.

(ii) The secretory vesicle may accumulate in the cell in the form of lysosome. These accumulating particles cause aging. So in aged cell there are a lot of vesicles.





Q.7 (b) Discuss different types of epithelial tissue?  
Answers: EPITHELIAL Tissue :-

The tissue in which

packing or arrangement of cells is tight (tightly packed) are called epithelial tissue.

LOCATION:-

Epithelial tissues form the lining of

most of the organs.

They form the upper layer of skin.

Organs are mostly surrounded by epithelial tissue because of their tight nature.

FUNCTIONS:-

1- These tissues protect the surface of skin.

2- Provide protection to various organs.

3- Prevent desiccation of various organs.

4- Epithelial tissues having cilia have main function







Some types of epithelial tissue also produce mucus.

## TYPES OF EPITHELIAL TISSUES:-

There are various types of epithelial tissues, which can be classified on the basis of their structure and number of cells or arrangement of cells.

### 1) ON THE BASIS OF CELL NUMBER:-

There are following three types:-

- 1- Simple epithelium tissue.
- 2- Stratified epithelium.
- 3- Pseudostratified epithelium.

### 2) ON THE BASIS OF SHAPE OF TISSUE:-

Following three types are there on basis of shape of epithelial tissue:-

1. cuboidal (disc like)
2. Columnar (wall of bricks)





means - 3- Squamous (like a floor).

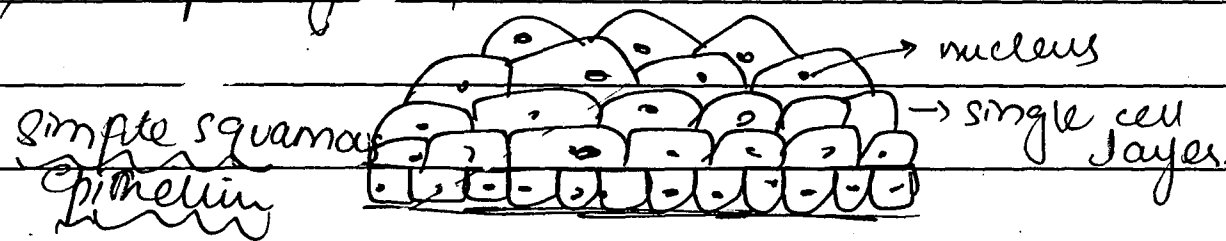
The following types of epithelial tissues are there when we combine their characteristics of shape and cell arrangement :-

1- SIMPLE SQUAMOUS EPITHELIUM :-

This type consists of single layer of cells arranged in the form of square shaped floor.

Function :- They provide protection

Location :- Occur in covering of organs like stomach, esophagus, etc.



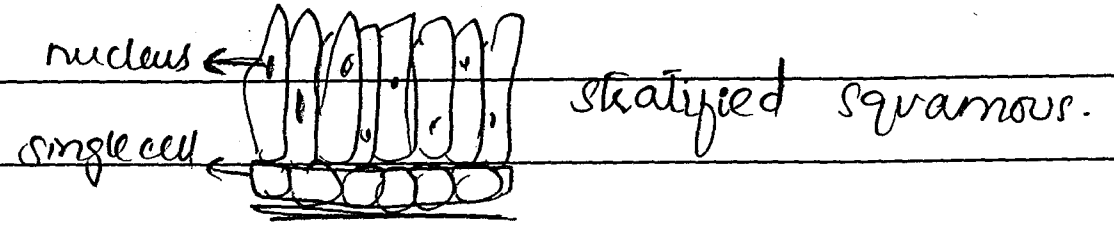
2- STRATIFIED SQUAMOUS EPITHELIUM :-

In these type of



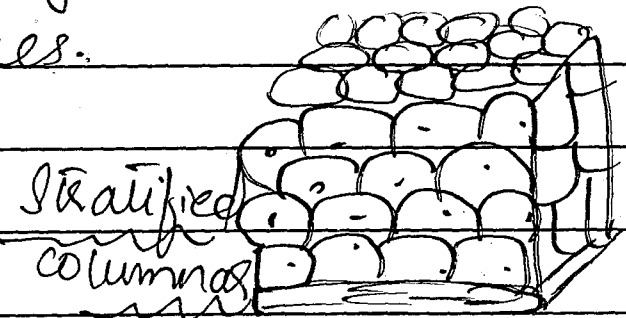
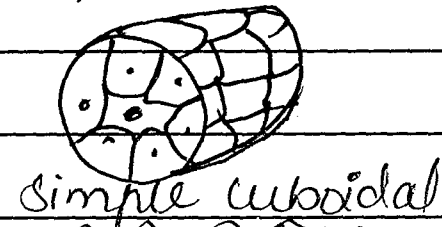


epithelial tissues are arranged in the form of stack having several layers of cell over one another. They contain single cube shaped nucleus.



### 3- SIMPLE CUBOIDAL EPITHELIUM:-

In these epithelia tissues single layer of cells are arranged in the form of cube forming disk like structure. Therefore they are named as simple cuboidal epithelial tissues.





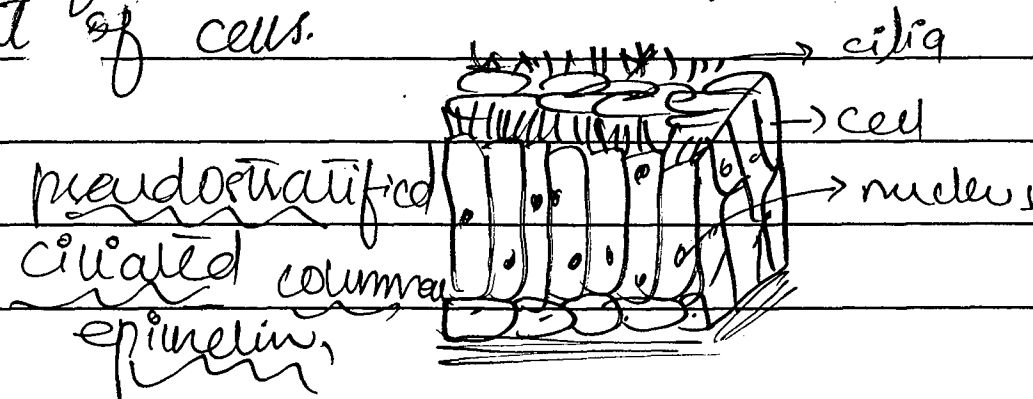
## STRATIFIED COLUMNAR EPITHELIUM:-

The epithelial tissues in which the cells are arranged in many layers, and arrangement is in form of columns or like the bricks arranged on wall giving a column like appearance.

## PSEUDOSTRATIFIED COLUMNAR CILIATED EPITHELIUM:-

In these epithelial cells, the cells are arranged singly but of different shapes are involved. These have cilia on their surface, so these are called ciliated.

Pseudo means - false, and stratified is their false arrangement of cells.





Q NOS: (a) Define and explain activation of energy?

Ans:- ACTIVATION OF ENERGY:-

Every reaction, especially chemical reaction needs some source of energy from which it can be started and proceed further. Such energy can be termed as activation energy.

DEFINITION:-

"The minimum amount of energy which a chemical reaction need or requires to start its process is called activation energy."

OR.

"The amount of energy required by a reaction to initiate, and further proceeds on its own, is called as activation of energy."





## EXPLANATION:-

For every type of reaction either occurring in body of organisms or in laboratory some energy must be supplied.

This energy is used by reaction to start itself. The reaction needs energy

just for starting not for the further progress of the reaction, means the reaction proceeds on its own, it just needs

a push to start. Such an energy is called activation energy.

Catalysts :- catalysts are substances which are used to initiate a reaction

or for early approach of products are used in the chemical reactions. These act by lowering activation energy.





Biological catalysts - enzymes:- Enzymes are biological catalysts which function in early approach of reaction. They carry out reactions in less time.

"Enzymes function by lowering activation of energy."

⇒ IN CASE OF HIGH VALUE OF ACTIVATION ENERGY:-

When substrates need a high amount of energy to dissociate their bonds and give the product, then we can say that their activation energy is high. It usually occurs when reactions are endergonic. Such reactions need greater supply of energy to dissociate their substrates and gave required product.





IN CASE OF LOW VALUE OF ACTIVATION OF ENERGY :- Such reactions which require less amount of energy supply for their initiation are said to have low activation energy. This case occurs in exergonic reactions mostly. In such reactions the substrates are at higher energy, and when they convert into product a considerable amount of energy is released. This energy released depends on substrate. But since some amount should be supplied to substrates to give products. But this energy supplied is usually less than the energy that is released.

GRAPHICAL REPRESENTATION :-

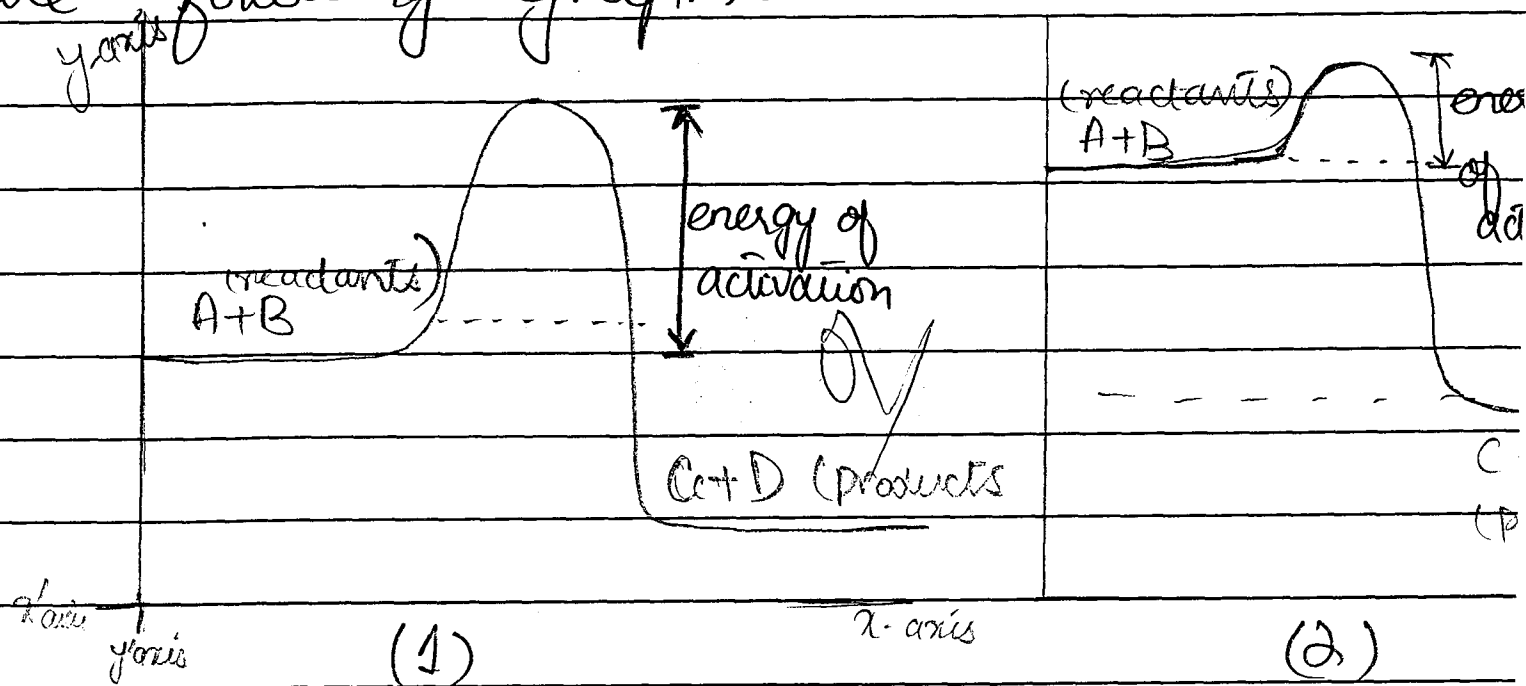
Activation of







energy can be represented by the plotting the following graph:-



→ Graph (1) indicates when reactants require large amount of energy.

→ Graph (2) indicates activation energy, where reactants require minimum amount of energy to get started. So it shows less curve.





Lowering of Activation Energy:-

Catalysis and enzymes especially function by lowering the activation energy of reactants or substrates, so can be easily converted to products in less time.

Q3 (b) What do you know about the substrate level of phosphorylation?

Answer SUBSTRATE LEVEL PHOSPHORYLATION:-

"The synthesis of ATP by phosphorylation of ADP in the processes of glycolysis and Kreb's cycle is known as substrate level phosphorylation."

EXPLANATION:-

ATP (adenosine triphosphate) is an energy currency of cell. It is produced in





cells by different chemical reactions which occur in cytoplasm and on mitochondria.

→ **Phosphorylation**:- The addition of inorganic phosphate to the molecule of adenosine diphosphate or adenosine monophosphate is called phosphorylation.

The phosphate groups are linked by the bond called as phosphodiester bond. Energy is released when this bond breaks.

ATP gives largest amount of energy per bond (approx: 7.3kcal). Then ADP breaks to give AMP, which carries least energy.

→ **Glycolysis**:- "The process in which glucose mol-



ecule is broken down by several enzymes into two pyruvate molecules, resulting in release of