



**Department of Environmental Science**

**College of Science**

**University of Salahaddin**

**Subject: general biology- Practical**

**Course Book - (Year 1)**

**Lecturer's name Dr. Mohammed Azeez OTHMAN**

**Academic Year: 2023-2024**

## Course Book

1. Course name	General biology (Practical)
2. Lecturer in charge	Dr. Mohammed Azeez OTHMAN
3. Department/ College	Environmental Science / Science
4. Contact	e-mail: <a href="mailto:mohammed.othman@su.edu.krd">mohammed.othman@su.edu.krd</a>
5. Time (in hours) per week	Practical: 12 hrs per week.
6. Office hours	3 hours per week.
7. Course code	
8. Teacher's academic profile	<ul style="list-style-type: none"> <li>• I graduate from Salahaddin University/ College of Science/ Biology department in 2003 (Ranked 8<sup>th</sup> in college). In 2004 I worked as assistant biology for 2 years and assisted in practical ecology lab., microbiology lab., practical soil lab., practical sewage microbiology lab., and practical plant physiology lab.</li> <li>• In 2008 I completed my M.Sc. degree and in same year I started as Assistant Lecturer Teaching Practical Limnology and pollution, and theory waste management in the same college.</li> <li>• For 3 years (2009-2011) I worked as a Member of the Examination Committee for College of Science.</li> <li>• I participated in Teaching Methods Course in 2009 in the same university.</li> <li>• In 2018 I completed my PhD. degree and in same year I started Teaching theory population and Ecology</li> </ul>
9. Keywords	Cell, Tissue. Body system, animals classification, photosynthesis

**10. Course overview:**

The course will cover general **biology**, which is the science that study of life and living organisms, including their structure, function, growth, evolution, distribution, and taxonomy. Biology has many sub-disciplines unified by five so-called axioms of modern biology:

1. Cells are the basic unit of life
2. Genes are the basic unit of heredity
3. New species and inherited traits are the product of evolution
4. An organism regulates its internal environment to maintain a stable and constant condition
5. Living organisms consume and transform energy

Biology as a separate science was developed in the nineteenth century as scientists discovered that organisms shared fundamental characteristics. Biology is now a standard subject of instruction at schools and universities around the world, and over a million papers are published annually in a wide array of biology and medicine journals.

**11. Course objective:**

1. Provide information on the taxonomic diversity of plants, animals and micro-

organisms.

2. Understanding the binomial system of names for species.
3. methods for detecting species presence in the field and assessing species richness, determining the abundance of the species and interpreting community similarity and change in the context of environmental change.
4. Link theory, hypothesis, methods, data and field work.

## 12. Student's obligation

A student must read the lecture hand-out before the class. Three classes in-between the semester is devote for examination, each student must prepare him/her good. Therefore, each student must have three exam marks till the end of the course.

An absence from classes should be excused according to the general regulations (i.e. sick leave) soon after coming back to college otherwise the absence is recorded as an unexcused one, and marks were subtracted from the final grade. For each class, we recommend the students to take the lecture hand-out before attending the classroom.

The questions on the test will comprise a mixture of quantitative calculations and qualitative responses that provide interpretation of the results obtained. These will require the student to demonstrate of knowledge of ecological theory and may require some additional reading beyond the lecture material.

## 13. Forms of teaching

A student must read the lab lectures hand-outs before the class. In the class, the lectures are power-point present at the first couple of hours of the class, inconspicuous points are clear on whiteboard, difficult idioms and tough words are also clear for the students. Finally a slide of question mark is present in order the students to ask the teacher about inconspicuous points from each lecture. The lectures will be presented mainly in English language as well as Arabic and Kurdish language will be used if it's necessary in the Lab.

#### 14. Assessment scheme

Grades are break down as follow:

First exam = 20 points

Second exam = 20 points

The mean of the two examinations will be taken. The final grade at the end of the year would be 25% of practical subject. In addition to 15% on Respecting Classroom Policy and quiz:

- Mean of two practical examinations: 20%
- Weekly quiz and attendance: 15%

#### 15. Student learning outcome:

- Students will able to use of full range of sampling techniques currently available for invertebrate and vertebrate as well as plants in a terrestrial environment, as well as they will be able to explore techniques in the quantification of biodiversity and the measurement of abundance.
- Develop field skills such as surveying and monitoring.
- Develop identification skills such as bacteria, fungi, protozoa, animals and plants.

#### 16. Course Reading List and References:

1. Hunter and Gibbs (2007), *Fundamentals of Conservation Biology*.
2. Krebs, C.J. (1999). *Ecological Methodology*. (2<sup>nd</sup> Edition). Benjamin-Cummings.
3. Sinclair, A.R.; Fryxell, T. and Caughley, G. (2006) *Wildlife Ecology, Conservation and Management*. (2<sup>nd</sup> Edition). Blackwell Publishing.

#### 17. The Topics:

#### Lecturer's name

#### 18. Practical Topics (If there is any)

**Week1:**course outline, lab safety rules.

**Week 3:**Types of cell(prokaryotic and eukaryotic cells).

**Week 4:** Structure of eukaryotic cells (plant and animal

#### Teaching staff:

Dr. Mohammed Azeez  
OTHMAN

cells).

**Week 5:**Non-living organelles of plant cells.

**Week 6:**examination

**Week7:**Cell division (metosis)

**Week8:**Cell division (meosis)

**Week9:**(Homeostasis) cellular transport.

**Week10:**tissue

**Week11:** Measuring the rate of photosynthesis

**Week 12:**Second examination

**Week13:**Cellular respiration

**Week 14:** Classifying of organisms

**Week 15:** Archaea and Bacteria Protists and fungi

**Week 16:** Vascular and Non vascular plant

**Week 17:** Plant response

**Week 18:**Invertebrates, Sponges, Cnidaria and Ctenophores

**Week 19:** Flatworms, Roundworms and Rotifers

**Week20:** Mollusca and Annelida

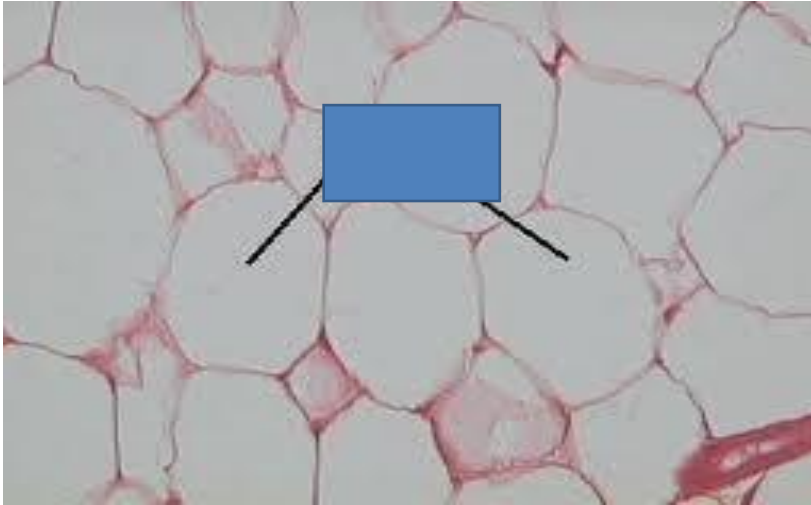
**Week 21:** Arthropoda

**Week 22:** Vertebrate

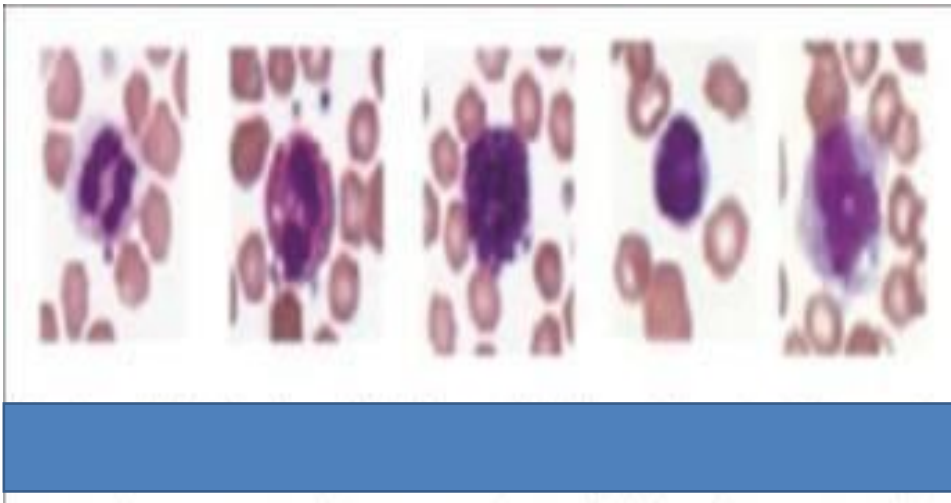
**Week 23:** Mammals, animal behaviour

Lectures, 3 hours duration.

## 19. Examinations:

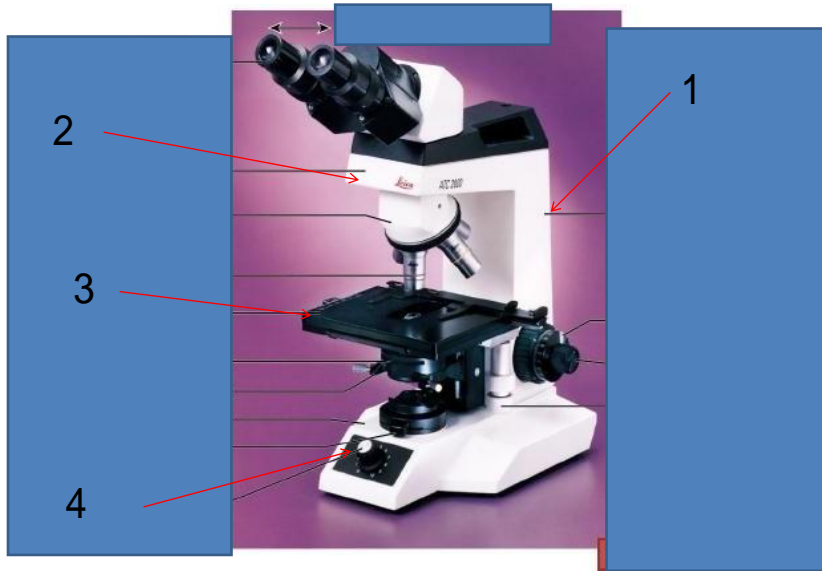


Q1/ Identified this slid and write the name of pointed cell?



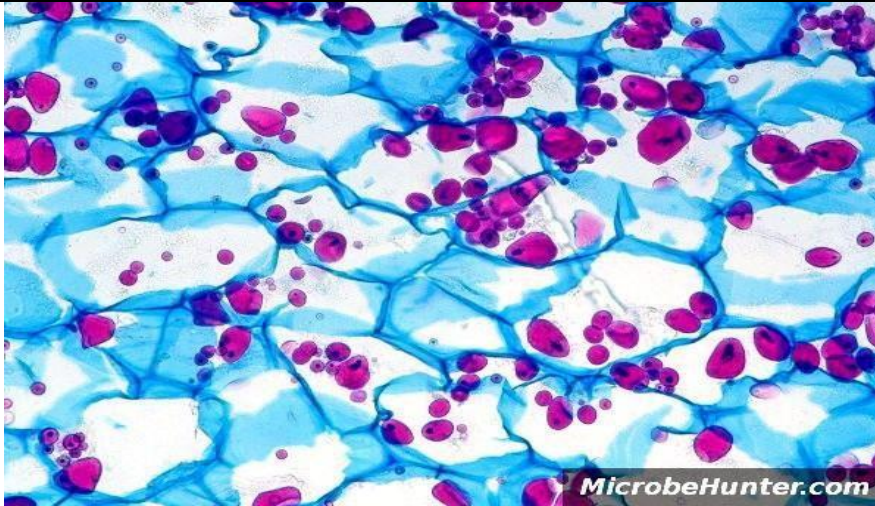
Q2/ identify the slide and write the name of stain which used to stain it?

**Q3/  
a/define biology?  
b/ write branch of biology and the  
focus of eachbranch?**

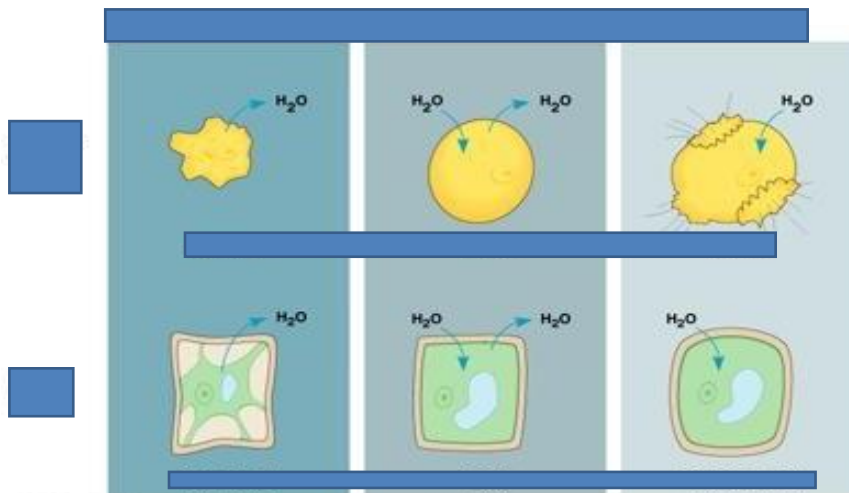


**Q4/  
a/identify the slide and write the name of pointed part?  
b/why must use oil with 100X?**



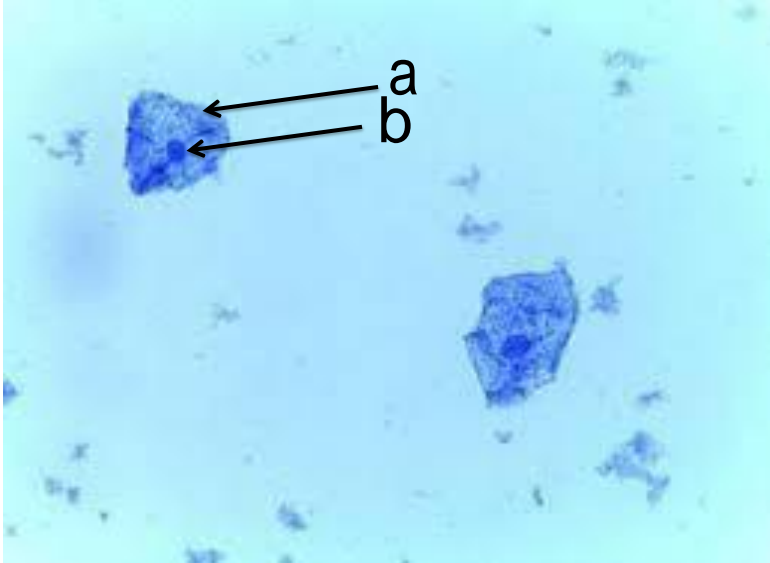


Q5/ identify the slide and write the types of it according to hilum position?



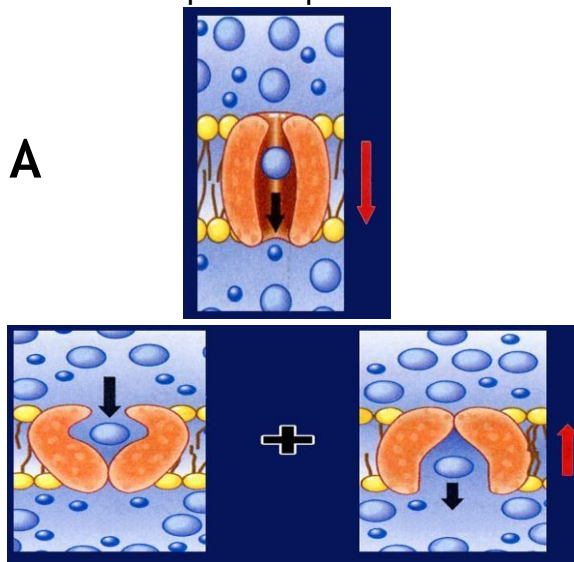
Q6/

- a/ write the types of each cell and solution?
- b/ what happen to each cell?
- c/ write the name of cellular transport of this slide?



Q8/A/identified the slide? Where tack this smear and write the name of cell?

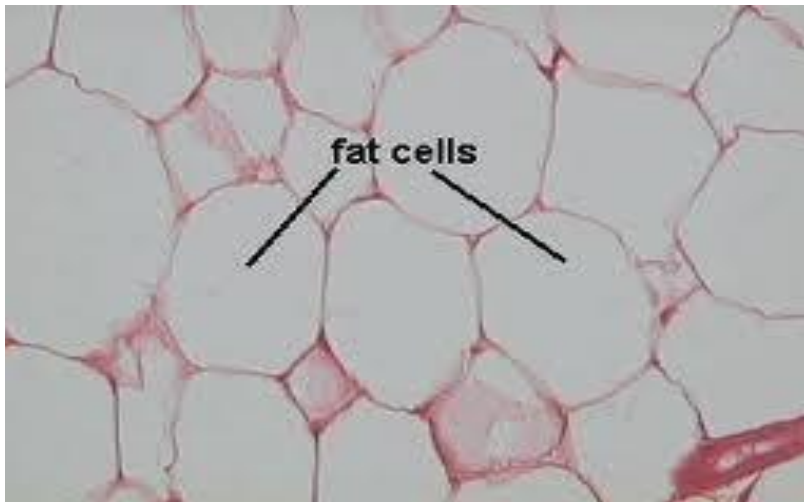
B/ write the name of pointed part?



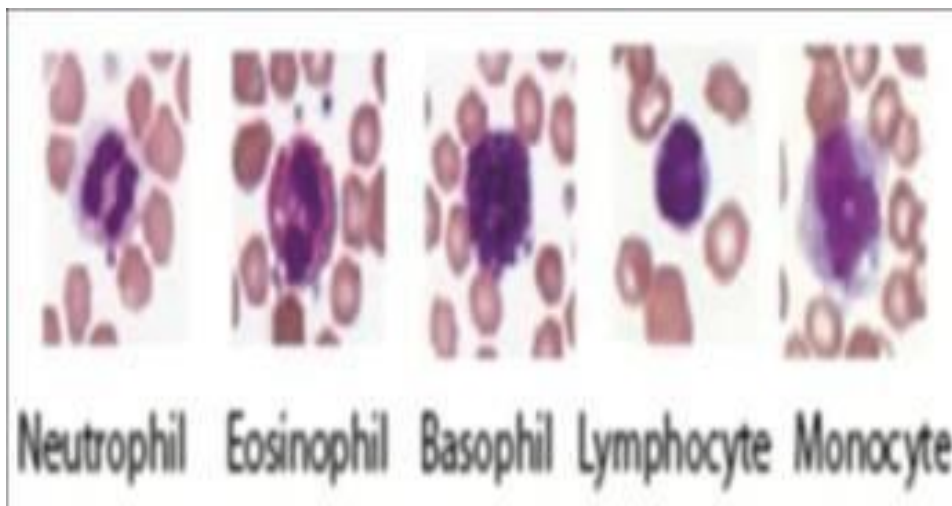
Q9/ write the types of transport of each picture and the part of each of them?

Typical answer:

Q1/



Fat cell



## Types of white blood cell

The stain which use for stain it is leshman stain

Q3/

**a-** *Biology is the science that studies life and living things, including the laws that govern the phenomena of life.*

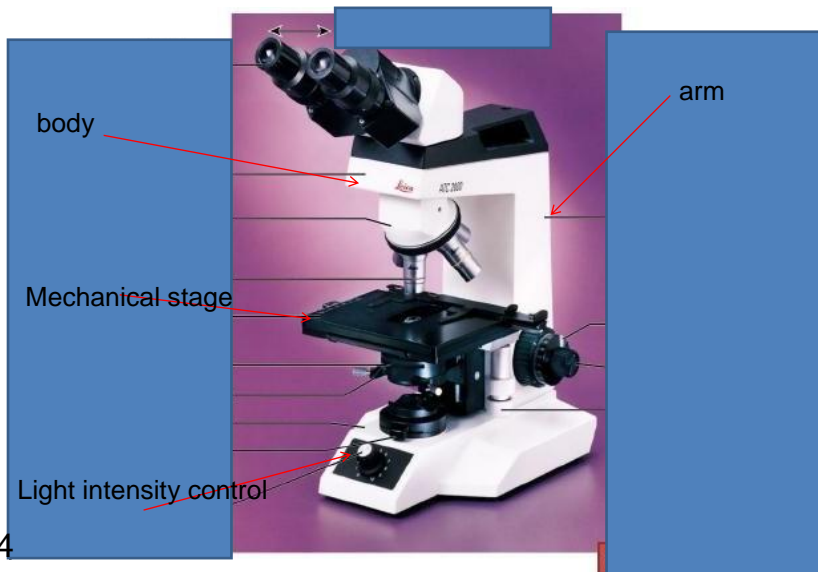
▪ *Biology is a natural science because it is the study of organic (living) nature. It is*

the science of fishes and fireflies, grass and grasshoppers, humans and mushrooms, flowers and sea stars, worms and molds. It is the study of life on top of the highest mountain and at the bottom of the deepest sea.

## b- Branches of biology:-

The amount of knowledge gained in biology is so large that it has many branches. The following table lists some of the major ones

Name	Focus
Botany	plants
Zoology	animals
Anatomy	structure of living things
Taxonomy	classification of living things
Cytology	cells, their structure and functions
Genetics	heredity
Physiology	functions of living things
Microbiology	living things at microscopic level

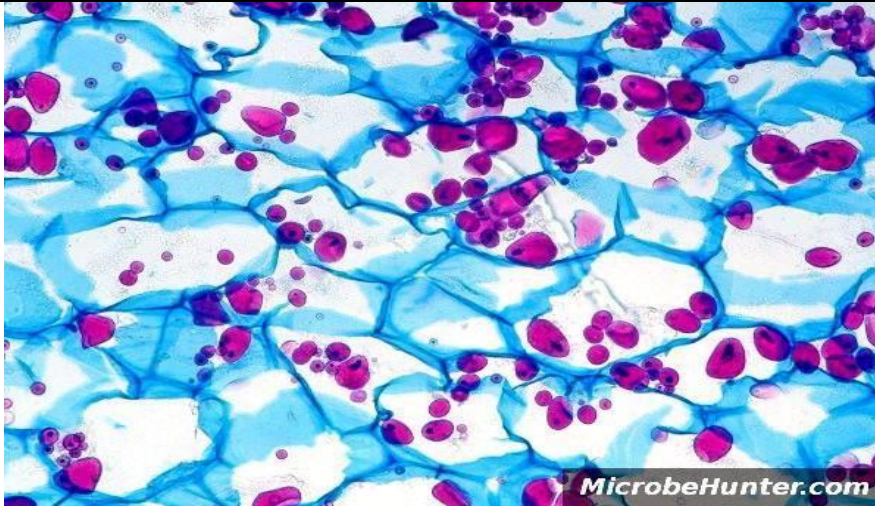


Q4

a- compound microscope

b/ The oil is used because it has same refractive index as glass, which prevents the loss of light due to the bending of light rays as they pass through air. The use of oil in this way enhances the microscope.





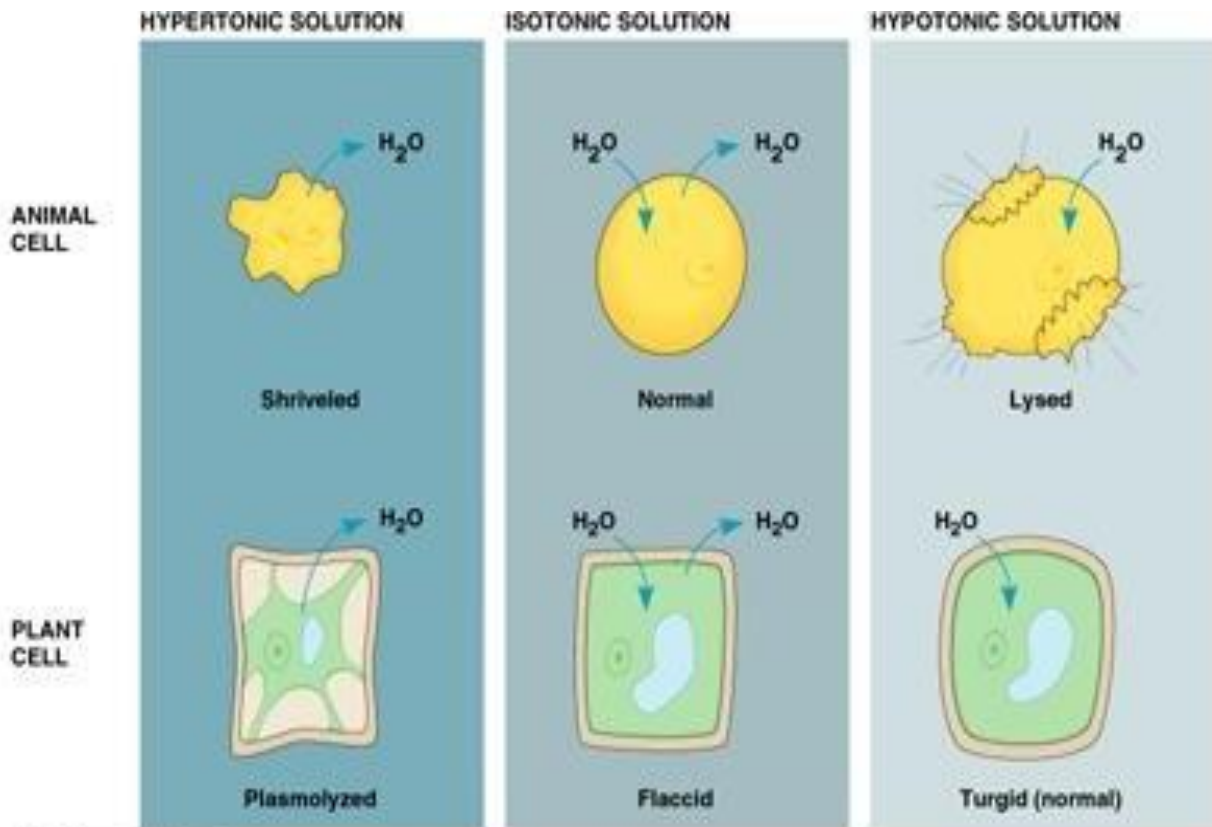
Q5/ starch grain in potato.

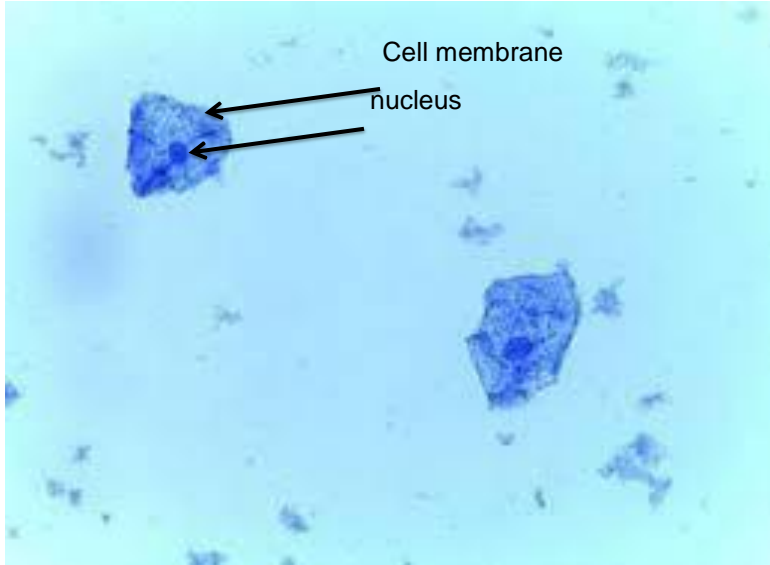
Starch grain is different in position of hilum: included:

1. Concentric
2. Excentric
3. Cracked

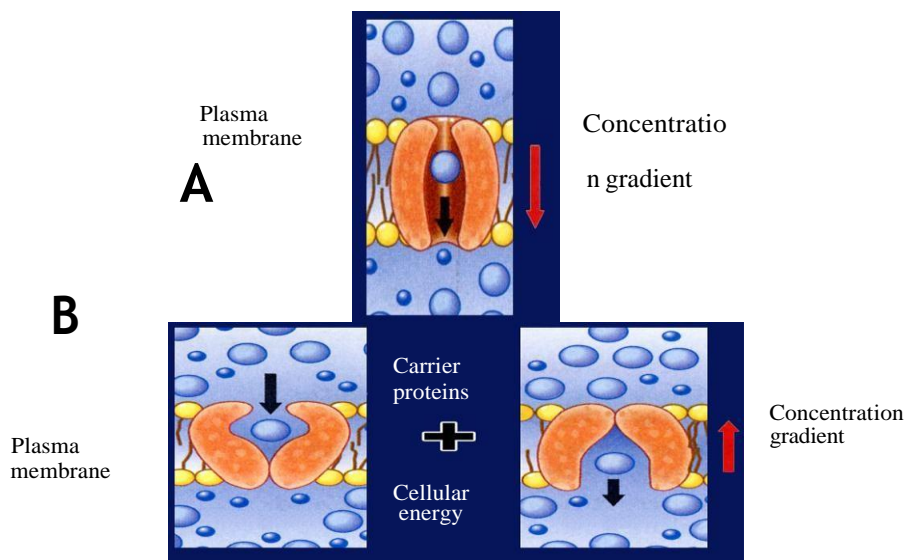


Q6/





Q8/ A/Buccal smear  
Simple epithelial squamous cell



Q9/ a/ passive transport  
b/ active transport.

## 20. Extra notes:

Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks.

## review Peer 21.

پیداچون هوهی هاو دل

This course book has to be reviewed and signed by a peer. The peer approves the contents of

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.

*(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*

ئەم كۆرسىبۇوكە دەبىت لەلايەن ھاوملىكى ئەكادىمىيە سەير بىكرىت و ناوەرۇكى بابەتكانى كۆرسەكە پەسەند بىكات و جەند ووشەيك بنوسىت لەسەر شىاوى ناوەرۇكى كۆرسەكە و واژووى لەسەر بىكات.  
ھاومل ئەم كەسەيكە زانىارى ھەبىت لەسەر كۆرسەكە و دەبىت پلەي زانستى لە ماموستا كەمتر نەبىت.