	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	THEORITICAL EXAMINATION FOR 3RD YEAR STUDENTS OF SPECIAL BOTANY			
	COURSE TITLE: PHYSIOLOGY OF ALGAE			COURSE CODE: BO3113
DATE:	JAN 2021	TERM: 1	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2H.

Question 1: Give short accounts on the followings **(35 marks)**

1- Chemical structure of cyanocobalamin (vitamin B_{12}).

2- Photobioreactors for algae: uses, advantages and disadvantages.

3- Chemical structure of the chlorophyll molecule.

4- Lag phase in the standard algal growth curve.

5- Light and combined nitrogen as factors affecting N_2 fixation in algae.

6- Photoassimilation of acetate by algae.

7- Chemical structure of the nitrogenase enzyme.

Question 2: Explain the mechanism of the following processes: **(35 marks)**

1- Nitrogen fixation by Cyanophyta.

2- Photodynamic effect and carotenoids pigments in photosynthesis.

3- Photorespiration via glycolate pathway.

4- Thiamine requirement in algal growth.

5- Formation of vitamin B_{12} analogues.

6- Factors leading to the declining of the relative growth phase.

7- Biological adaptation of algae to minimize photorespiration.

Question 3: Recognize the odd word; then mention the scientific joint between the other words **(20 marks)**

1. (Chlorophyll a - carotenoids- photorespiration - xanthophylls).
2. (Phosphorus - nitrogen – Sulphur - iron).
3. (3p-glycerate - photoassimilation - p-glycolate - carboxylase/ oxygenase enzyme).
4. (Starch - paramylum - plastids - glycogen like starch).
5. (Atmospheric nitrogen - *Oscillatoria* - *Nostoc* - *Chlorella*).
6- (Batch culture - outdoor culture - closed culture - sea water media).
7- (Heterocyst - carbohydrates - N_2 fixation - ammonia).
8- (Light - temperature - photosynthesis - aeration).
9- (Thiamine - cyanocobalamin - factor B - cobalamin).
10- (Photoautotrophy - sugar algae - acetate algae - heterotrophy).

Please turn the page on

Question 4: Complete the following sentences **(10 marks)**

1- Mixotrophic algae are.....

2- The Phycobiliproteins pigments in algae are.....

3- Heterotrophy is defined as.....

4- Acetylene inhibits N_2 fixation because.....

5- In Chromophyta the plastids are surrounded by.....

6- Chlorophyll C is characterized by.....

7- A continuous culture is.....

8- Xanthophylls are.....

9- Algae need Fe and Cu for their growth because.....

10- A batch culture is.....

End of Questions *Best Wishes*

Examiners committee

Prof. Dr. Gehan A. Ismail **Prof. Dr. Atef M. Aboshady**

	Tanta University - Faculty of Science - Botany Department			
	Examination for Junior (3rd Year Chem - Bot)			
	Course Title	التنوع الحيوى وصون الحياة الفطرية		Course Code: BO 3135
Date	Jan 2021	Term: First	Total Assessment: 50 Marks	Time Allowed: 2 Hr

١- ماهى ظاهرة الدفيئة، وما أهم الأسباب المؤدية إليها؟
٢- عرف التنوع الحيوى؟
٣- فرق بين محمية المعزل الطبيعى و محمية الموارد الطبيعية؟
٤- قارن بين الندرة الطبيعية والندرة المكتسبة؟

٥- عرف محمية المحيط الحيوى؟
٦- قارن بين القيمة التعليمية والقيمة العلمية للمحميات الطبيعية؟
٧- ما المقصود بخاصية القابلية للإحلال أو الإيجاد؟
٨- قارن بين خاصية التفرد وخاصية الندرة؟

٩- هل بعض الأنواع تشارك اكثر من غيرها فى التنوع الحيوى لمنطقة ما، ولماذا؟
١٠- ما الفرق بين إسترجاع وإعادة تأهيل المجتمعات النباتية؟
١١- ما هو المقصود بمقياس التصنع كأحد مقاييس الحالة الفطرية للبينات الطبيعية؟
١٢- ماهو المقصود بمراكز التنوع النباتى، وكيف يتم اختيارها طبقا للإتحاد الدولى لصون الطبيعة؟

١٣- قارن بين الفطرة الأولى والفطرة الثانية؟
١٤-ماهو اكبر مسبب لانقراض الأنواع؟
١٥- أذكر مبررات صون التنوع الحيوى؟
١٦- أيهما أفضل: المحميات المفردة كبيرة الحجم أم المحميات العديدة صغيرة الحجم، ولماذا؟

الممتحنن: أ.د. كمال شلتوت

	Tanta University - Faculty of Science - Botany Department			
	Examination for Junior (~~4th Year Botany + Micro~~ 3rd Chem- Bot) 3135			
	Course Title	التنوع الحيوى وصون الحياة الفطرية		Course Code: ~~BO 4105~~ 3135
Date	Jan 2021	Term: First	Total Assessment: 100 Marks (~~BO 4105~~)	Time Allowed: 2 Hr

١- قارن بين الفطرة الأولى والفطرة الثانية؟
٢- ماهو اكبر مسبب لانقراض الأنواع؟
٣- ماهى مبررات صون التنوع الحيوى؟
٤- أيهما أفضل: المحميات المفردة كبيرة الجحم أم المحميات العديدة صغيرة الحجم، ولماذا؟

٥- وضح كيف أن بعض الأنواع تشارك اكثر من غيرها فى التنوع الحيوى لمنطقة ما؟
٦- ما الفرق بين إسترجاع وإعادة تأهيل المجتمعات النباتية؟
٧- وضح باختصار المقصود بمقياس التصنع كأحد مقاييس الحالة الفطرية للبيئات الطبيعية؟
٨- ماهو المقصود بمراكز التنوع النباتى، وكيف يتم اختيارها طبقا للإتحاد الدولى لصون الطبيعة (IUCN)؟

٩- ما المقصود بمحمية المحيط الحيوى؟
١٠- مالفرق بين القيمة التعليمية والقيمة العلمية للمحميات الطبيعية؟
١١- ما المقصود بخاصية القابلية للإحلال أو الإيجاد؟
١٢- قارن بين خاصية التفرد وخاصية الندرة؟

١٣- ماهى ظاهرة الدفيئة، وما أهم الأسباب المؤدية إليها؟
١٤- ما المقصود بالهشاشة البيئية؟
١٥- عرف التنوع الحيوى؟
١٦- قارن بين محمية المعزل الطبيعى و محمية الموارد الطبيعية؟

مع تمنياتنا لكم بالتوفيق
الممتحن: أ.د. كمال شلتوت

1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANYY			
	EXAMINATION FOR JUNIORS (THIRD YEAR) BOTANY STUDENTS			
	COURSE TITLE:	Molecular Biology		COURSE CODE: BO3103
DATE:	17 JAN., 2020	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

ANSWER THE FOLLOWING QUESTIONS

1. Three polypeptides, the sequences of which are represented below, are present in a mixture: **(10 Marks)**

1. ATKNRASCLVPKHGALMFWRHKQLVSDPILQKR-QHILVCRNAAG
2. GPYFGDEPLDVHDEPEEG
3. PHLLSAWKGMEGVGKSQSFAALIVILA

a. Which type of chromatography you would use to separate them? Explain?
b. Which polypeptide would migrate most slowly? Why?

2. Complete each of the following: **(34 Marks)**

a. Prokaryotic DNA is organized into a DNA-protein complex called the ----------.

b. ---------- are variety of proteins that help maintain chromosome structure.

c. The stacked minibands form ----------.

d. ---------- is particularly condensed state of chromatin, tends to be replicated very late in S phase, while ---------- tends to be replicated earlier.

e. Bending or twisting of the axis around both strands of the DNA coil is referred to ----------.

f. The degree to which a particular DNA polymerase remains associated with the template is called ----------.

g. During immunoaffinity purification ---------- tags are added to the N- or C-terminal of the protein.

h. DnaG synthesizes ---------- on the lagging strand.

i. The coiling of the two DNA strands around each other creates two grooves ---------- and ----------.

Please turn over the page

j. The two main eukaryotic replicative DNA polymerases are ---------- and ---------- ----------.

k. ---------- binds to the unwound DNA strands and prevents their re-annealing.

l. Origin of replication is specified by short DNA sequence that is rich in ---------- and attracts ----------.

m. Purines and pyrimidines are nitrogen-containing ----------.

3. A "relaxed," circular, double-stranded DNA molecule (1600 bp) is in a solution where conditions favor 10 bp per turn. **(16 Marks)**

a. What is Linking number (L)?
b. What is the value of L_0 for this DNA molecule?
c. Suppose DNA gyrase introduces 12 negative supercoils into this molecule. What are the values of *L*, *W*, and *T* now?
d. What are the two classes of topoisomerases and their functions.

4. Write short notes on the following: **(20 Marks)**

a. Replication-coupled nucleosome assembly.
b. Nick translation.

5. Compare between each of the following: **(20 Marks)**

a. Protein sequence determination by Edman degradation and Tandem mass spectrometry.
b. Organization of prokaryotic and eukaryotic chromosomes.

With my best wishes

EXAMINERS	PROF. DR. REDA GAAFAR	

	Tanta University, Faculty of Science, Department of Botany		
	Course Title: Physiology of Algae	Course Code: BO3113	
Date: 2021	Term: First	Total Assessment Marks: 100	Time Allowed: 2 Hours

I- Choose the correct answer: - (20 Marks)

1- Agar is a neutral polymer of .....
a) glucose b) galactose c) fructose d) sucrose

2- The packed cell volume measurements are done in the .....
a) same nutrient b) different nutrient c) flask d) Jar

3- Counting region in Haemocytometer consists of two chambers each with ..... squares.
a) 6 b) 9 c) 10 d) 12

4- An element not required for growth of algae and may have a role in photosynthesis.
a) Phosphorous b) Magnesium c) Nitrogen d) Chloride

5- Algae require ..... ion as activator of enzymes.
a) Potassium b) Nitrogen c) Sodium d) Magnesium

6- Carotenoids belong to large group of compounds like .....
a) Molybdenum b) Copper c) Trepenoids d) Magnesium

7- ..... protect against photodynamic destruction catalyzed by chlorophyll.
a) Phycocyanin b) Phycoerythrin c) Carotenoids d) Allophycocyanin

8- Red algae thylakoids resemble those of .....
a) Green algae b) Cyanobacteria c) Brown algae d) None of these

9- Photorespiration has been attributed to the oxidation of ..... which is biosynthesized rapidly by chloroplasts only during photosynthesis
a) Lactic acid B) Acetic acid c) Pyruvic acid d) Glycolic acid

10- ..... cyanophytes were proved to be capable of fixing atmospheric nitrogen.
a) Filamentous B) Heterocystous c) Non heterocystous d) All of the previous

II- Put sign (a) in front of the correct answer and sign (b) in front of the wrong answer (20 marks)

1 – Xanthophylls are derivative of carotenoids. (.....)

2- N, P, Mg, Fe, Cu, Mn and Mo are required by all algae and can be replaceable other elements. (.....)

The next page

3. Carotenoids protect against photodynamic destruction of chlorophyll during photosynthesis. (.....)

4. Algae possess chlorophyll need magnesium for their metabolism. (.....)

5- Prior counting of motile algal species on Haemocytometer: 1 or 2 drops of 10% alcohol should be added to a 10 to 20 ml sample of the culture to be counted. (.....)

6- Phycobilin is not participate in photosynthesis. (.....)

7- Chlorophyll can be extracted by water. (.....)

8- Sulphur in not required for both nuclear and cytoplasmic cell divisions. (.....)

9- All algal divisions not have Chl a and Chl b. (.....)

10- Iodin is needed for marine algal species. (.....)

III- Write short notes on the following: - (30 Marks)

1- Function of Phycobiliproteins
2- Agar
3- Nitrogenase enzyme.

IV- Explain the following: - (30 Marks)

1- How oxytroph algae (acetate and sugar algae) can transform acetate carbon into polysaccharide storage products?

2- Factor influencing algal nitrogen fixation by Cyanophytes

3- Role of Cobalt for algal growth

With my best wishes

Prof Dr. Hanan Hafez Omar

Examiner Committee	*Prof Dr. Hanan Hafez Omar*	*Dr. Rania El-Shenody*

	Tanta University, Faculty of Science, Department of Botany	
	Course Title: Physiology of Algae	Course Code: BO3113
Date: 2021	Term: First / Total Assessment Marks: 100	Time Allowed: 2 Hours

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With my best wishes

Prof Dr. Hanan Hafez Omar

Examiner Committee	*Prof Dr. Hanan Hafez Omar*	*Dr. Rania El-Shenody*

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY		
	EXAMINATION FOR (LEVEL THREE) STUDENTS OF SPECIAL BOTANY		
	COURSE TITLE: PLANT GROWTH AND DEVELOPMENT		CODE:BO3101
Date: 21/1	JAN, 2021	Total Assessment Marks: 150	Time allowed:2 h

First Group (75 marks)

Answer the following questions:-

First question: Complete the following. (50 marks)

1- **Signal transduction is .....**
2- **Calmodulin is .....**
3- Dormant phase in plant measures.....
4- **Dormancy types are either..... or.....**
5- **Vernalin is produced in.....**
6- Vernalization is defined as.....
7- **Photoperiodism is defined as.....**
8- Long day plants require.....
9- Photoperiodism discovered by.....
10- Flowering of short day plants requires.....
11- **Development** is defined as.....
12- **Morphogenesis is.....**
13- **Fruit set is.....**
14- **Senescence is.....**
15- **Typical plant consists of....., ... and.....**
16- **Growth rate is measured by.....**
17- **Factors affecting growth rate are..... .....**
18- **Develoement of plsnt cell passes through ...., ... and .....**
19- **During germination of seeds the dry weight decreases because .....**
20- **Plants pass during its life to different stages....., ..., ... and .....**

Second question: Give a brief account on three only of the following. (25 marks)

a- Growth curve
b- Initiation of lateral roots.
c- Apical dominance.
d- Leaf senescence and leaf abscission.
e- Signal perception.

Second Group (75 marks)

First question: Choose the right answer. (30 marks, 3 each)

1)The site of production of ABA is in.....
a-leaves and fruits b-stems and roots c-shoot apex d- a and b

2)A hormone that stimulates (via ethylene production) femaleness in dioecious flowers.
a- (GAs) b- (ABA) c-(IAA) d-Cytokinins

3)The apical bud suppresses growth of lateral buds due to supply of.....
a- (ABA) b- (IAA) c-Ethylene d-(GAs)

اقلب الصفحة من فضلك

4)A plant hormone that promotes ripening of some fruits an thickening of stems and roots...

a- Auxin (IAA) b- Abscisic acid (ABA) c-Ethylene d-Gibberellins (GAs)

5)A plant hormone that stimulates stem and root growth and causes tropism.....

a- (IAA) b- (ABA) c-Ethylene d- (GAs)

6) A plant hormone that promotes root growth and differentiation and retards aging....

a- (IAA) b- (ABA) c-Ethylene d-Cytokinins

7) A plant hormone that promotes seed germination and bud growth....

a- (IAA) b- (ABA) c-Ethylene d-(GAs)

8) A plant hormone that inhibits growth and close stomata under stress conditions.....

a- (IAA) b- (ABA) c-Ethylene d- (GAs)

9)Auxin (IAA) is produced in.....

a-Embryos and meristems b-buds c-shoot apex d-all mentioned before

10)Gibberellins are produced in....

a-embryos and meristems b-young leaves c-roots d- a and b

Second question: Answer the following.(45 marks, each 15 mark)

1- Biosynthetic pathways of IAA.
2- Functions cytokinins, ethylene and ABA.
3- Illustrate with drawings the hormonal interactions influence plant growth and development.

Best wishes....

Prof. A Mohsen Prof. E Hamada
Tel :503 Tel: 320

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY		
	EXAMINATION FOR (LEVEL THREE) STUDENTS OF CHEMISTRY & BOTANY		
	COURSE TITLE: PLANT GROWTH AND DEVELOPMENT		CODE:BO3101
Date: 21/1	JAN, 2021	Total Assessment Marks: 150	Time allowed:2 h

First Group (75 marks)

Answer the following questions:-

First question: Complete the following. (50 marks)

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2- **Calmodulin is .....**
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Best wishes....

Prof. A Mohsen Prof. E Hamada
Tel :503 Tel: 320

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY		
	FINAL EXAM (FIRST TERM, 2020 / 2021) FOR THE THIRD YEAR STUDENTS (INDUSTRIAL AND APPLIED BIOTECHNOLOGY)		
	COURSE TITLE	CELL AND TISSUE CULTURE	COURSE CODE: BO325
DATE:	MARCH 14, 2021	TOTAL ASSESSMENT MARKS: 60	TIME ALLOWED: 2 HRS

Answer the followings questions

(Please be advised that the exam is prepared in <u>three</u> pages.)

<u>First question</u>: choose the best answer: **(30 marks)**

<u>Part (A)</u>: ***(Examiner: Dr. Osama Sweef)***

1- Disaggregating of cells can be achieved by

A- Physical disruption
B- Enzymatic digestion
C- Treating with chelating agents
D- All of the above

2- What is the concentration of CO_2 required for culturing animal cells?

A- 2-5%
B- 1-10%
C- 10-15%
D- 15-20%

3-Trypsin is used for dissociating the tissue into single cells.

A- True
B- False

4- What are the main constituents of culture for animal cell growth?

A- Glucose and Glutamine
B- Growth factors
C- Cytokines
D- All of these

5- In the secondary culture, cells are obtained from .....

A- Phenotypic culture
B- The organism
C- Organ culture
D- primary culture

6- Which of the following is incorrect?

A-Established cell lines (ECL) have short doubling time
B- ECL are invariably aneuploidy
C- ECL do not show much evidence of spatial orientation
D- ECL grow in higher density

7- Range of optimum glutamine concentration present in the culture media is

A- 1-2 mmol/litre
B- 2-7 mmol/litre
C- 7-15 mmol/litre
D- 15 – 20 mmol/litre

8- Which of the followings are the metabolic products of glucose and glutamine?

A- CO_2 and NH_3
B- CO_2 and lactate
C- Lactate and ammonium
D- Lactate only

9- To prevent the accumulation of lactate

A- Low glutamine concentration is required
B-High glutamine concentration is required
C- Low glucose concentration is required
D- High glucose concentration is required

10- Excess CO_2 suppress cell growth and productivity by

A- Inhibiting respiration
B- Altering intracellular pH by diffusing across cell membrane
C- Both (A) and (B)
D- Altering pH of the medium

Please, turn over,,,,,

Part (B): *(Examiner: Prof. Ashraf Haider)*

11) Cybrids are produced by:

a) Fusion of two different nuclei from two different species
b) Fusion of two nuclei of the same species
c) Nucleus of one species but cytoplasm from both the parent species
d) None of the above

12) Heterokaryons are produced by:

a) Fusion of two protoplasts of two different species
b) Fusion of mitochondria
c) Fusion of chloroplast
d) Fusion of nuclei

13) Hybrids are produced by:

a) Fusion of two protoplasts of two different species
b) Fusion of mitochondria
c) Fusion of chloroplast
d) Fusion of nuclei

14) Plant protoplast is produced using

a) Cellulase and alginate
b) Pectinase and cellulase
c) Osmotic pressure
d) Electric current

15) Polyvinylpyrrolidone (PVP) is added to culture media:

a) To prevent oxidation of phenolic compounds
b) To avoid browning of cultured tissues
c) Both A and B
d) As a carbon source

16) The membranes of the two different protoplasts are made to fuse by:

a) Osmotic shock (PEG and Ca^{++}) b) Electrical current
c) Both A and B d) None of the above

17) The ability of callus cells to form a whole plant is known as:

a) Redifferentiation b) Dedifferentiation
c) Either A or B d) None of the above

18) Production of somatic embryos via callus formation is called:

a) Indirect organogenesis b) Indirect embryogenesis
c) Direct embryogenesis d) Direct organogenesis

19) Production of plant organs from non-meristematic tissues is called:

a) Adventitious organogenesis b) Direct organogenesis
c) Microcutting d) Indirect organogenesis

20) Subculturing is recommended during:

a) Multiplication (shoot production) stage b) Callus stage
c)Both A and B d) None of the above

Please, turn over,,,,,

Second question: **(30 marks)**

Part (A): *(Examiner: Dr. Osama Sweef)*

List the steps in order how you can make a sub-culturing of semi-adherent cells in a cell culture lab.

Part (B): *(Examiner: Prof. Ashraf Haider)*

1) **Give reason for:**
   a) **Subculturing is necessary in plant tissue culture.**
   b) **Allopolyploids have (4n) of chromosomes**

2) **Write short notes on:**
   a) **Functions of plant growth regulators (hormones) in tissue culture.**
   b) **Steps of Micropropagation.**

Best wishes

Prof. Ashraf Haider
Dr. Osama Sweef

1969	BOTANY DEPARTMENT - **TANTA UNIVERSITY** - FACULTY OF SCIENCE			
	Examination / Third level / Microbiology Special Students			
	Course Title:	**Control of Gene Expression**		Course Code: **BO3111**
26 Jan., 2020	Term: **First**	Total assessment marks: **100**		Time Allowed: **2** hours

ANSWER THE FOLLOWING QUESTIONS

1. **Indicate whether each of the following statements is true (T) or false (F) and correct the false ones.** **(30 Marks)**

   a- The acetylation of histones usually reduces transcription ( ).
   b- Arabidopsis flowering locus D plays an important role in suppressing flowering ( ).
   c- Partial diploid $lacI^s$ $lacZ^+$/$lacI^+$ $lacZ^+$ produce β-galactosidase in the presence and absence of lactose ( ).
   d- The gene regulation in eukaryotic cells occurs only at transcriptional level ( ).
   e- Mediator is one of the components of the basal transcription apparatus ( ).
   f- In yeast, transcription is activated by GAL4 in response to lactose ( ).
   g- Some activators have acetyltransferase activity and stimulate transcription by altering chromatin structure ( ).
   h- In eukaryotic cells, gene regulation is characterized by a greater diversity of mechanisms ( ).
   i- Regulatory genes are genes whose products, either RNA or proteins ( ).
   j- *lacP*$^-$ mutations are trans acting and thus affect only genes on the same DNA molecule ( ).

2. **Mutations may have an effect on the expression of the *lac* operon and the *trp* operon. Would the following mutations have a *cis*- or *trans*-effect on the expression of the structural genes in the operon?** **(20 Marks)**

   a. A mutation in the operator site.
   b. A mutation in the *lacI* gene.
   c. A mutation in *trp* leader region.

3. **Compare between the following:** **(30 Marks)**

   a. Two types of transcriptional control in prokaryotes.
   b. Catabolite repression and translational control in bacteria.
   c. Two types of histone modifications.

4. **What is DNA methylation? When we say that DNA methylation is heritable, what do we mean? How is it passed from a mother to a daughter cell?** **(20 Marks)**

With my best wishes

Prof. Dr. Reda Gaafar

TANTA UNIVERSITY
FACULTY OF SCIENCE
BOTANY DEPARTMENT

FINAL EXAMINATION / Credit hour system/ 3rd year Special Botany

Course Title: Plant enzymology			Course Code: BO: 3111
DATE:18 March 2021	**Term: 1st**	**Total assessment marks: 50**	**Time Allowed: 2 hour**

I) Define: 10 markes

Enzymes, Isoenzymes, Multyenzyme system, Catalyst, Inhibitors, Catalases enzymes, Epimerases, Ligases enzymes.

II) Choose the correct answer for each of the following: 10 markes

a- Type of enzymes, remove hydrogen through oxidation from the substrate.
a- Peroxidase enzyme **b- Oxidase enzyme.**
c- Dehydrogenase enzyme. **d- Reductase enzyme.**

b- Molecules that increases enzyme activity termed as:
a- Metal activators **b- Activators** **c- Vitamins** **d- All of the above**

c- A group of enzymes remove a group of atoms from the substrate leaving a double bond or add the group to the double bond in the substrate.
a- Hydrolases enzymes. **b- Isomerases enzymes.**
c- Lyses enzymes. **d- Ligases enzymes.**

d- A group in the enzyme structure active in flavoprotein enzyme which participate in oxidation-reduction enzyme.
a- Coenzyme. **b- Prothetic group.**
c- Oxidation-reduction reaction enzyme. **d- Non of the above.**

e- A group of enzymes which brings about the conversion of a substance molecule into different structure through rearrangement.
a- Hydrolases enzyme. **b- Isomerase enzyme.**
c- Transferase enzymes. **d- Lyses enzymes.**

f- A group of enzymes, include the enzymes which are act with specific chemical configuration is:
a- Isomerase enzymes **b- Stereo-specificity.**
c- Brood specifity. **d- Non of the above.**

g- A type of regulatory enzyme can regulate the enzyme action when the concentration of the end product build up.
a- Multienzyme system. **b- Allosteric enzyme.**
c- Covalent modulatory enzyme. **d- Non of the above.**

h- They are participate in oxidation –reduction reaction by acting as electron carrier.
a- Coenzyme **b- Prothetic group.**
c- Metal ions. **d- Oxidation-reduction enzyme.**

Questions are continue in the back باقى الاسئلة فى الخلف

i- A substance secreted from microorganisms or glands in higher plants on their substrates to break down their complex organic compounds into diffusible and simple compound.

a- Enzymes **b- Hydrolases enzymes**
c- Extracellular enzyme **d- All of the above.**

j- Type of enzymes which brings an atom from a donar to another accepting molecule.

a- Transferase enzymes **b- Isomerase enzymes.**
c- Lyses enzymes. **d- Oxidase enzymes.**

k- Group of enzymes catalyses the conversion of a sugar or sugar derivatives to its epimers.

a- Lyses enzymes. **b- Isomerase enzymes.**
c- Transferase enzymes. **d- Non of the above.**

L-Enzyme catalyzed the break down of glucosidic linkage in the carbohydrates.

a- Oxidase enzymes. **b- Caboxydase enzymes.**
c- Esterase enzymes. **d- Isomerase enzymes.**

III- Complete:- 5 markes

1- Like all catalysts, enzymes work by lowering the ..... for a reaction, thus dramatically accelerating the rate of the reaction.
2- Organic cofactors can be either..... which are released from the enzyme's active site during the reaction, or ..... which are tightly bound to an enzyme.
3- ..... is that enzyme not only specific to structure but also specific to surrounding chemical groups.
4-..... is that enzymes act on substrate that are similar in structure and have same type of bond.
5- A..... binds to a site other than the site, where the substrate binds. However the inhibition can not overcome by .....
6- Enzymes may function inside or outside the cell where they are synthesized and termed as ..... and .....
7- The completely active form of enzyme (In addition to the cofactor) is called .....

VI- Illustrate the following: - 25 marks

1- Broad specificity enzymes. 10 marks
2- Effect of metals, heavy metals and end products on enzyme activity. 5 marks
3- Class of regulatory enzyme, which enzymes acts upon another enzyme as it substrate to regulate its activity. 10 marks

With the best wishes

Prof. Dr. Essam El-Deen M. Abu-Kassem

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	EXAMINATION PAPER FOR 3rd YEAR STUDENTS (SPECIAL BOTANY)			
DATE 24/1	COURSE TITLE: JANUARY, 2021	Secondary Metabolites TOTAL ASSESSMENT MARKS:100	TERM:FIRST	COURSE CODE:BO3135 TIME ALLOWED: 2 h

Answer the following questions:

Question No. 1: Choose the correct answer (√) (40 marks, two each)

1- Guaiacol is found in...

a) Roasted coffee, b) smoke, c) coal tar, d) a and b

2- Alkaloids are colorless and....

a) Soluble in water and organic solvents b) insoluble in water but soluble in organic solvents, c) insoluble in water and organic solvents d) sparingly soluble in water

3- Alkaloids without oxygen atom(s) in their structures are usually.....at ordinary temperature.

a) gases b) liquids c) solids d) a and c

4-True alkaloids are .....

a) derived from amino acids and basic in nature b) as salts of organic acids
c) nitrogen in a heterocyclic ring and occur in plants d) all mentioned

5- Non-Heterocyclic Alkaloids.....

a) are called proto-alkaloids or biological amines b) are less commonly in nature
c) have nitrogen atom which is not a part of any ring system d) all mentioned

6- Pseudo-alkaloids are...

a) not derived from amino acids b) soluble in water
c)very weak in its basic character d) a and c

7- The element found in alkaloids is...

a) Cobalt b) iron c) nitrogen d) copper

8- The isoquinoline alkaloids morphine and papaverine comes from...

a)Maize (*Zea mays*), b) *Triticum vulgare*,
c) Opium poppy(*Papaver somniferum*) d) None of these plants

9- Vitamin K is required for

a) Change of prothrombin into thrombin b) synthesis of prothrombin
c) Change of fibrinogen to fibrin d) formation of thromboblastin

10- Calcium deficiency in the body occurs in the absence of...

a) Vitamin C b) Vitamin D c) Vitamin A d) Vitamin E

11- The vitamin C or ascorbic acid prevents

a) Scurvy b) Antibody synthesis c) Rickets d) Pellagra

12- The Hemorrhagic disease of new born is due to the deficiency of

a)Vitamin K b) Vitamin B12 c) Vitamin E d) Vitamin B6

13- To which of the following families do folic and pantothenic acid belong?

a)Vitamin C b) Vitamin K c) Vitamin A d) Vitamin B complex

14- Which of the following is correctly matched?

a) Vitamin E- Tocopherol, b) Vitamin D- Riboflavin,
c) Vitamin B- Calciferol, d) Vitamin A- Thiamine

15- Continuous bleeding from an injured part is due to the deficiency of

a) Vitamin A, b) Vitamin B, c) Vitamin K, d) Vitamin E

16- Tannins and lignins are examples of.....

a) Terpenes, b) Phenolics, c) Alkaloids, d) Glycosides.

من فضلك إقلب الصفحة

17-Catechol and hydroquinone have

a)One phenolic cycle and 7 C atoms b) one phenolic cycle and 6C atoms

c) two phenolic cycles and 12 C atoms d) two phenolic cycles and 14 C atoms

18- p-hydroxyphenyl acetic acid (phenyl acetic acid) has.....

a) 8 C atoms, one phenol cycle b) 9 C atoms, one phenol cycle

c) 10 C atoms, one phenol cycle d) 7C atoms, one phenol cycle

19- Canabinoids are...

a) The active constituents of *Cannabis*, b) Hormones,

c) Found in coal tar, d) Found in galls

20-Capsacin is.....

a) A hormone b) Active constituent of *Cannabis*

c) The pungent compound of chilipeppers d) Found in Galls

Question No. 2 (20 marks, 2 each pair)

CHOOSE THE CORRECT PAIRS

1 Turpentine (Terpene) class Number of isoperene unit(s)

1- Sesqiterpenes	i- Two
1- Monoterpenes	ii- Four
2- Diterpene	iii- Three
3- Triterpenes	iv- Six
4- Tetraterpenes	v- One
5- Hemiterpenes	vi- Eight

2 Substance Occurrence

1 Vitamin B12	i-ergot fungus
2 Vitamin A	ii-roasted coffee and smoke
3 Ergot alkaloids	iii-fresh fruits and vegetables
4 Gallic acid	iv-Kidney and liver of animals
	v-Carrot
	vi-in galls

Question 3: Answer the following. (40 marks)

1- Illustrate the role of phenolics in soils. (10 marks)

2- Mention five groups of typical (heterocyclic) alkaloids. (10 marks)

3- Write briefly on the applications of phenols. (5 marks)

4- Mention the function of alkaloids in plants. (5 marks)

5- Importance of terpenes and terpenoids (10 marks)

Best wishes....

E. Hamada. Office: 320 Mobile: 0106586808

1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	EXAMINATION FOR POTOSNTHESIS (THIRD LEVEL) STUDENTS OF CHEMISTRY AND BOTANY			
	COURSE TITLE:	Plant Photosynthesis		COURSE CODE: BO 3131
DATE:	January 2021	TERM: FIERST	TOTAL ASSESSMENT MARKS : 100	TIME ALLOWED 2 HOURS

Answer the following questions:

1- Write short note of the following:

25

a- Enhancement effect

b- Hill reaction.

c- Role of cartenoid in photosynthesis

d- The CO2 acceptor in Calvin cycle

e- Hatch-Slack pathway

2- Compare between the following:

25

a- The main differences between Chl. a and chl. b

b- C3 plants and C4 plants

c- C4 and CAM plants

3- Give full accounts of the following (Illustrated with Drawing):

50

a- Cyclic & non-cyclic photophosphorylation.

b- The reactions of Photorespiration

c- Energy transfer in photosynthesis..

d- Reaction of regeneration phase in carbon reduction cycle.

e- Blackman theory (Limiting factors theory)

WITH MY BEST WISHES ELSAYED FODA

	Tanta University, Faculty of Science, Department of Botany			
	Final Examination for (3rd Year) Students of chemistry and microbiology			
	COURSE TITLE: **Phycology**			
DATE: MARCH, 2021	TERM: 1ST TERM	TOTAL SSESSMENT MARKS: 60	TIME ALLOWED:2 HOURS	BO3141

Answer the following questions:

A. Choose the correct answer **[10 marks]**

1. *Chlamydomonas* reproduce sexually by _____
   a) Isogamy a) Anisogamy c) Oogamy d) All the Pervious
2. Cyanophyta can be moved by
   a) Flagella b) Celia c) gliding d) none of the pervious
3. The golden-brown color of diatom cells is due to the presence of
   a) fucoxanthin b) diadinoxanthin c) a) and b) d) phycocyanin
4. Fragmentation is reproductive tool present in _____
   a) prokaryotes b) eukaryotes c) a) and b) d) all filamentous cyanobacteria
5. The life cycle that has two haploid phases called_____
   a) Diplohaplontic b) Diplontic c) Diplobiontic d) Haplobiontic
6. *Spirogyra* gametes are nonmotile gametes.
   a) True b) False
7. Autogamy is fission of two gametes inside the mother cell
   a) True b) False
8. Sexual reproduction completely absents in Cyanophyta
   a) True b) False
9. *Ectocarapus* is isomorphic heterotriches seaweeds
   a) True b) False
10. zoospore of *Oedogonium* has two unequal flagella
    a) True b) False

B. Complete the following sentences **[10 marks]**

1. _____is multicellular spore that are formed at the tip of trichome with a thick sheath
2. The storage food of Phaeophyta are _____,_____and_____
3. _____is multicellular spore produced at the tip of the trichome.
4. Cyanobacteria is characteristic by the presence of _____pigment that has red color
5. *Ulothrix* reproduce asexually by_____,_____,_____and_____

C. Compare between the followings **(Answer only two questions)** **[10 marks]**

1. Chromoplasm and centroplasm
2. Nannandrous and Macrandrous
3. Lateral and Scalariform conjugations
4. Unilocular and plurilocular sporangia

D. Write on the following **(Answer only three questions)** **[30 marks]**

1. Heterocyst
2. Cell division in *Oedogonium*
3. Economic importance of Diatoms
4. Production of auxospore by parthenogenesis
5. Sexual reproduction in *Cladophora*

All the best.....Ass. Prof. Mostafa Elshobary

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY		
	FINAL EXAM FOR THE THIRD YEAR STUDENTS (CHEMISTRY/BOTANY)		
	COURSE TITLE	PLANT CYTOGENETIC AND EVOLUTION	COURSE CODE: BO3135
DATE	2-1- 2020	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HRS

Answer the following questions:

Question 1:Complete the following sentences: (30 marks)

1)- Mainly composition of plasma membrane ……,…….. and ……
2) - Golgi apparatus plays a role in forming ……, ……and ……
3) -The three types of Secondary lysosomes are ……, …. …… and ……
4) - Crossing over is ……..occur in ……phase, while the synapsis is……occur in ……
5) - The color of Phaeoplast are …… and Contain …… pigment which it's important ……
6) - Leptonema is characterized by presence of ……
7) - Non-disjuction is ……
8) - The major function of the RER is …… While SER is ……
9) - Genetic system in Prokaryotes……while in Eukaryotes…… ……
10) - Types of ribosme ……which found in……..and the other…… found in……

Question 2: Describe with labeled drawing only (40 marks)

1- Events anaphase between mitosis and mesosis
2- The different types of chromosome according to centromere
3- Amitosis
4- Mitochondaria
5- The chromosomal abnormalities during telophase

Question 3: Put (R) or (W) with correction if wrong (20 marks)

1- In 1838,T.S. Schwann discovered that all tissues of plants are made up of cells ( )
2- Lyosomes contain destructive enzymes capable extra-cellular digestion of the cell ( )
3- Microbodies are granular bodies with double membrane ( )
4- Each chromatid of chromosomes has thick filaments known as chromonemata ( )
5- Singer (1975) were the first described the basic unit of chromatin ( )

Question4: Discuss each of the following: (60 marks)

1- Plasmodesmata with clarify the difference between Apoplast and Symplast pathway.
2- Lagging chromosome and multinucleated cell
3- - The importance of nucleus with mention the chemical component of chromatin.
4- The significance of meiosis and Mitotic division

Marwa Hamouda
With my best wishes

	Tanta University Faculty of Science Department of Botany			
	EXAMINATION for level 3 Students of Special Botany			
	Course title:	Plant geography		Course Code:BO3109
Date: 25/3	2021	Term: First	Total assessment Marks:50	Time ALLOWED:2 ours

أ-أكمل: (20 درجة)

1- من أهم أنواع مراكز مساحة التوزيع
هي.....و.....و.....و.....

2- المبادئ 13 لدراسة الجغرافيا النباتية الديناميكية قد وضعها العلماء.....و.....و.....

3- العوامل التي تحدد درجة حرارة أي منطقة هي
.....و.....و.....و.....

4- من الشواهد الدالة علي تغير المناخ في الماضي
.....و.....و.....و.....و.....

5- تسمي أراضي الحشائش بأسماء عدة منها.....و.....و.....و.....و.....

ب - اكتب في التالي: (20 درجة)

1- اذكر مميزات الوحدات التكاثرية التي تنتشر بواسطة الرياح. (5 درجات)

2- قارن بين المجتمع النباتي التندرا والشاپارال. (5 درجات)

3- ماذا يقصد بالفعل المشترك. اذكر نتائج تأثير الفعل المشترك علي الكائنات الحية. (5 درجات)

4- تحتوي المياه علي العديد من المجتمعات النباتية. فما هي؟ اذكر مايميز كل مجتمع من الغطاء النباتي. (5 درجات)

ج - تكلم في ما يأتي: (10 درجات)

عند خط الاستواء درجة حرارة = 56.5 درجة منوية احسب ارتفاع جبل يوجد عند خط عرض 62.4 درجة من خط الاستواء وايضا اوجد درجة حرارة سفح هذا الجبل. ودرجة حرارة قمة الجبل = 11.5 درجة منوية.

مع تحياتي بالتوفيق والنجاح

أستاذ المادة: أ.د. محمد أحمد البحيري