



Assiut University- Faculty of Science
First Semester- Final Exam 2025-2026
Botany and Microbiology Department

Program: Microbiology
Level : (2)
Date: 22/1/2026
Time: 2 h



Course Title: Biology of aquatic fungi

Code: 261 B

Instructors: Prof. Dr. Abdel-Raouf M. Khalil

Important:

No. of pages: 5

No. of questions 6

Total Mark: 50 degree

Q.1- Provide the scientific term or the relevant organism(s) for TEN ONLY of the following items:- (10 Marks)

- 1- The transfer of energy from fungi on phytoplankton to zooplankton in aquatic food webs.
- 2- The aquatic fungus which is an obligate parasite on some arthropods and thereby is emphasized the great potential in the biological control of mosquitoes larvae.
- 3- An aquatic fungus which could be used as biocontrol agent for nematode.
- 4- The causative agent of Cryfish plague disease.
- 5- The causal agent of shrimp Mycosis.
- 6- Aquatic fungi that can tolerate a variable wide range of temperatures are known as:-
- 7- The fungal fish disease which is characterized by rough or granulomatous of the skin and white to gray-white lesions in the internal organs and different parts of the fish body.
- 8- Group of metabolically related organisms that exhibit similar habitat requirements and that respond in a similar way to changes in their environment.
- 9- The causative agent of gill rot disease of fish.
- 10- Using aquatic fungi to degrade environmental contaminants into less toxic forms.
- 11- S-shaped conidia commonly produced by aquatic fungi.
- 12- Organic material entering aquatic systems from the surrounding land

(Give your answers in the following table):-

No	Answer	No	Answer
1		7	
2		8	
3		9	
4		10	
5		11	
6		12	

Q.2: Circle the correct answer for 7 only (Give the fit word if it is missing):- (7 Marks)

1. Ingoldian fungi are:

A). Terrestrial fungi.

B). Aquatic hyphomycetes producing characteristic conidia

C). Yeast-like fungi.

D). Lichen-forming fungi.

E). None of all.

- 2- Water aeration stimulates sporulation because:
 A). Reduces oxygen. B). Increases carbon dioxide
 C). Provides oxygen and dispersal advantage. D). Prevents hyphal growth
- 3- Water flow affects sporulation because:
 A). Slows growth. B). Enhances oxygen and dispersal.
 C). Inhibits enzymes. D). Reduces spore size E). The above all.
- 4- The key structure used for identification of aquatic hyphomycetes is:
 A). Flagella. B). Zoospores. C). Cell wall proteins. D). Mycelial color. E). None of all.
- 5- The sewage fungus which is usually found in polluted waters of high organic content like sewage and drainage water and may be of possible value as biological indicators of pollution.
 A). *Pythium*. B). *Achlya*. C). *Saprolegnia*. D). *Olpidium*. E). None of all.
- 6- Gelatinous appendages on aquatic conidia function to:
 A) Aid adhesion and increase buoyancy. B) Protect from UV light. C) Provide nutrients.
 D) Prevent bacterial contamination. E). The above all.
- 7- Aquatic fungi contribute to nutrient cycling by:
 A) Fixing nitrogen. B) Mineralizing organic matter. C) Preying on bacteria
 D) Forming biofilms only. E). None of all.
- 8- A typical feature of aero-aquatic fungi is:
 A). Producing yeast cells. B). Gas vesicles. C). Large, coiled conidia
 D). Thick-walled zygospores. E). The above all.

Q.3- Tick (✓) for True and (X) for False Sentences. (Correct the wrong words; Answer 7 only):

(7 Marks)

- 1- Pollution (heavy metals, low oxygen, toxic chemicals) inhibits enzyme activity and sporulation. ()
 (.....)
- 2- Rhizophyidium is responsible for mortality and population decline of frog worldwide. ()
 (.....)
- 3- Biostimulation is the process of introducing specially selected or engineered microorganisms into a contaminated site in order to enhance the degradation of pollutants that the native microbial population cannot efficiently break down is termed. ()
 (.....)
- 4- The appearance of cotton -like, white to grey growth on the skin, gills, fins and eyes of fish is main clinical signs for fish diseases caused by *Plasmodiophora brassicae*. ()
 (.....)
- 5- The partially adapted fungi are able to maintain their biomass and are capable of sporulating in the water as substrates and nutrients become available. ()
 (.....)
- 6- The process by which aquatic fungi colonize and-biochemically modify submerged leaves, thereby rendering them suitable for consumption by aquatic shredders, is known as *leaf conditioning*.” ()
 (.....)
- 7- Allelopathy is defined as the interaction between two different aquatic fungi at which one member benefits while the other does not benefit nor is it harmed. ()
 (.....)

3- Aquatic fungi considered good indicators of water quality.

4- The conditioned by aquatic fungi more palatable and nutritious for aquatic invertebrates?.

Q.6: Write briefly on THREE ONLY of the following:- (12 Marls)

- 1- The diseases caused by water molds (Oomycetes) and their control in aquaculture.
- 2- The diagnostic features of Rumen fungi and its importance.
- 3- Occurrence, biodiversity and seasonality of aquatic fungi as affected by salinity, temperature and light.
- 4- The Potential fungal counter-adaptations may include strategies to hide from invertebrates.

Q2- What are the various criteria on the basis of which meristems can be classified? List the characteristic features of it? Give a brief account of various types of meristems based on their functions and locations in the plant body?

Q3- Classify xylem depending upon the position of protoxylem in vascular bundles? Name, Compare and describe with drawing different types of vascular bundles characteristic old Dracaena stem.

Q4- What are the functions of vascular tissue system? Write an account of adaptation of structure to function of any tissue of this system?

Q5- A- Differentiate between heart wood and sap wood? Which of the two is more durable? Why?

B- Write short note with drawing on interxylary phloem.

Part two: Plant Morphology (25 Marks)

First question: write short notes about the following:

- 1- Compare between hypogeal germination and epigeal germination with drawing.
- 2- Write the different types of leaves with referring to it function
- 3- Write different types of stem modification with writing cause of modification (with drawing).
- 4- Write different types of leaf modification with writing cause of modification (with drawing).
- 5- Compare between sympodial and monopodial branching

Second question: choose the correct answer of following statement:



1	..... plants that complete their life cycle in one year a. Annual b. Perennials c. Scape d. Biennials
2	..... is a very thin area serves to absorb nutrients from the endosperm during germination a. Scutellum b. Coleoptile c. Coleorhiza d. Testa
3	A group of plants which unable to make photosynthesis process, is called..... a. insectivorous plants b. woody plants c. herbaceous plants d. all the preceding
4	When the stipules are large and green leafy structures they are called..... a. Foliaceous b. adnate c. scaly d. spinous
5	In, hypocotyl greatly elongated pushing cotyledons above soil surface to give up cotyledonary leaves a. Viviporus b. Epigeal c. Hypogeal d. velamen
6	In leaflets arranged on both sides of leaf stalk and ends with two leaflets a. Paripinnate b. imparipinnate c. bipinnate d. all the above
7	When the stipules are large and green leafy structures they are called:- a. Foliaceous. b. Adnate c. Spinous d. Scaly
8	..... is present at the apical of plant and responsible for elongation a. Apical bud b. Lateral bud c. Seed d. Accessory bud.
9	..... flattened stem that appears leaf-like and is specialized for photosynthesis a. Stolon b. Caulescent c. Scape d. Cladophyll
10	The total leaves present on the shoot system of the plant called a. phyllome b. buds c. branch d. thorn
11	..... is spirally coiled, spring like structures which are highly sensitive to contact and coil around the neighboring support a. Bud b. Branch c. Roots d. Tendrile
12	..... branching occurs when the terminal bud continues to grow as a central leader shoot and the lateral branches remain subordinate a. Monopodial b. sympodial c. dichotomous d. cymose
13	..... roots are adventitious roots, which look like little tree branches a. Prop b. Climbing c. Respiratory d. fibrous
14	..... and are the protective caps over the plumule and radicle, respectively a. Scutellum and coleoptile b. Coleoptile and coleorhiza c. Testa and coleoptile
15	The internodes are usually reduced and one or more axillary buds are present in the axil of the scale leaves in stem a. Tuber b. bulb c. corm d. Rhizome

End of Exam

"Best Wishes"

Prof. M. H. Elmagdy

Dr. Mona Hasan

	Assiut University- Faculty of Science First Semester- Final Exam 2025-2026 Botany & Microbiology Department	Programs: Microbiology, Chemistry & Microbiology, Botany, Chemistry & Botany Level: (2) Date: 21/1/2026 Time: 2 h	
Course Title: Phycology		Code: 273 B	
Instructor: Dr. Mohamed Gomaa			
Important:	No. of pages 1	No. Of questions 5	Total Mark: 50 Marks

QI: Mention the composition of cell wall, type of storage food and type of life cycle in 6 ONLY of the following algal genera:.....(9 Marks)

(*Ulva, Laminaria, Sargassum, Vaucheria, Nitzschia, Volvox, Cosmarium*)

QII: Differentiate between each two of the following WITH DRAWINGS (Answer 4 ONLY)...(16 Marks)

1. Asexual spores of *Vaucheria* and *Oedogonium*.
2. Male and female organs in *Chara*.
3. Gametes and type of sexual reproduction in *Chlamydomonas* and *Spirogyra*.
4. Type of sexual reproduction in pennate and centric diatoms.
5. Types of asexual sporangia in *Ectocarpus*.

QIII: Give the scientific reason(s) for 4 ONLY of the following:-.....(6 Marks)

1. Life cycle in Rhodophyta is haplodiplobiontic.
2. The coenobium of *Volvox* is more advanced than *Pandorina*.
3. Formation of auxospores in diatoms.
4. *Nostoc* has a blue green color, while *Scenedesmus* has a green color.
5. Formation of necridia in *Oscillatoria*.

QIV: DRAW 5 ONLY of the following and MENTION THEIR FUNCTIONS:-.....(10 Marks)

(Androspores – Spermatangia – Palmella stage -- Gonidia -- Heterocyst – Polyhedron)

QV: Complete 9 ONLY of the following sentences:-.....(9 Marks)

1. The mesokaryotic nucleus is found in
2. Algae growing on rocks are known as.....
3. Chlorophyll d is found in.....
4. is a macroalga used as food.
5. Asexual reproduction in *Pandorina* is by formation of.....
6. Azygospores are found in.....
7. Asexual reproduction by formation of zoospores that never liberated from zoosporangia occurs in.....
8. Algae consisting of definite number of cells are known as.....
9. is an immotile unicellular microalga.
10. *Oedogonium* has.....shaped chloroplast.

With all best wishes,.....Dr. M. Gomaa



Frist -Term Examination
2025/2026



Botany and Microbiology
Department

Plant and Microbial Biotechnology
Plant Physiology (208 BT)
(Credit hours)

Time: 2 hours

Q1): Choose the correct answer: (30 marks)

- 1- An emulsion is always between____
a) two solids b) a solid and liquid c) two gases d) two liquids
- 2- In active transport, molecules move from an area of _____ concentration to an area of _____ concentration.
a) high: low c) low: high
b) high: higher d) low: lower
- 3- The process of water moving across a membrane from an area of high-water concentration to low water concentration is called:
a) dialysis c) active transport
b) osmosis d) diffusion
- 4- Plant need one of following for the ATP formation.
(a) N, P (b) N, Ca (c) K (d) N, Cu
- 5- The osmotic pressure of a solution
a) increases with increase in concentration of solute.
b) decrease with increase in concentration of solute.
c) remains unchanged with increase in concentration of sol
d) none of these
- 6- The theory that explains the pulling force of water as it evaporates from leaves is called
a) root- pressure theory. c) pressure-flow hypothesis.
b) cohesion-tension theory. d) active transport theory.
- 7- High root pressure can cause water to be lost by leaves through the process
a) respiration c) transpiration
b) regurgitation d) guttation
- 8 - Stomata close when the guard cells:
a) lose water.
b) Photosynthesis begins and the internal CO₂ concentration decreases.
c) gain chloride ions.
d) become turgid.
- 9- According to the Hardy-Schulze rule, which ion would be most effective in coagulating a negatively charged colloidal sol?
(a) Na⁺ (b) Mg²⁺ (c) Al³⁺ (d) K⁺

10- The pathway of water from the soil through the plant to the atmosphere is best represented by which of the following sequences?

- (a) endodermis - cortex - epidermis - vessel elements - intercellular spaces in mesophyll - stomata.
- (b) epidermis - cortex - Casparian strip - endodermis - sieve cells - intercellular spaces in mesophyll - stomata.
- (c) Casparian strip - root hairs - epidermis - cortex - xylem - endodermis - intercellular spaces in mesophyll - stomata.
- (d) root hairs - cortex - endodermis - vessel elements - intercellular spaces in mesophyll - stomata.

11- Approximately what percent of the water absorbed by a plant is lost to the atmosphere?

- (a) over 90%
- (b) 10-20%
- (c) 25%
- (d) 40-60%

12- Elements such as calcium, potassium, and phosphorus, needed by the plant in fairly large amounts are called:

- (a) Fertilizers
- (b) enzyme activators
- (c) Macronutrients
- (d) Coenzymes

13- In plants, water rises beyond the point supported by the atmospheric pressure mostly because of

- a) capillarity
- b) gravity
- c) evaporation
- d) active transport

14- The opening of the stomata is affected by all the following except

- (a) oxygen concentration
- (b) temperature
- (c) light
- (d) carbon dioxide concentration

15- A cell in an isotonic solution

- a) loses water and shrinks.
- b) gains water and expands.
- c) gains and loses the same amount of water, staying in the same shape.
- d) none of the above

16- What is the role of chlorophyll?

- (a) To produce sugar
- (b) To trap heat energy
- (c) To trap light energy
- (d) To produce water

17- In most species, as K^+ moves in or out of the guard cell to regulate the stomatal opening, there is movement in the opposite direction by

- (a) Na^+
- (b) H^+
- (c) OH^-
- (d) Cl^-



18- In photosynthesis, what is ATP required for?

- (a) Carbon fixation
- (b) Splitting water
- (c) Trapping light energy
- (d) Production of light

19- In which cell organelles do carbon fixation occur?

- (a) Mitochondria
- (b) Vacuoles
- (c) Grana
- (d) Stroma

- 20- This process begins with the production of Acetyl-CoA:
- (a) chemiosmosis
 - (b) glycolysis
 - (c) fermentation
 - (d) krebs cycle
- 21- The products of the light-dependent reactions of photosynthesis are
- (a) sugar and water
 - (b) sugar and oxygen
 - (c) ATP, NADPH, and oxygen
 - (d) ATP and sugar
- 22- Apparently _____ is the source of energy for keeping stomata open.
- (a) Photosynthesis
 - (b) Transpiration
 - (c) ion transfer
 - (d) hydrogen bond formation
- 23- Which of the following can only take place when light is present?
- (a) Glycolysis
 - (b) Aerobic respiration
 - (c) Light-dependent reactions
 - (d) Light-independent reactions
- 24- The part of the enzyme where the substrate binds is called the:
- (a) active site
 - (b) catalyst
 - (c) inhibitor
 - (d) large subunit
- 25- Zinc plays a critical role as a precursor in the formation of which important plant growth hormone?
- a) Ethylene
 - b) Abscisic acid
 - c) Auxin
 - d) Gibberellin
- 26- Which of the following occurs in the stroma of the chloroplast?
- (a) light dependent reaction
 - (b) electron transport chain
 - (c) calvin cycle
 - (d) photolysis
- 27- When oxygen is not present, fermentation may be used to break the pyruvate into all of the following except:
- (a) ethanol
 - (b) oxygen
 - (c) carbon dioxide
 - (d) lactic acid
- 28- Which useful energy conversion is carried out by chlorophyll?
- (a) Heat energy to light energy
 - (b) Chemical energy to heat energy
 - (c) heat energy to Chemical energy
 - (d) Light energy to chemical energy
- 29- When a photon of light energy reaches a reaction center chlorophyll molecule, what becomes exciting?
- (a) a molecule of water vapor
 - (b) an electron
 - (c) a carbon dioxide molecule
 - (d) an atom of oxygen
- 30- What is the starting source of carbon in the glucose produced by photosynthesis?
- (a) ATP
 - (b) Cellulose
 - (c) Carbon Dioxide
 - (d) Sugars

	Assiut University- Faculty of Science Botany & Microbiology Department First Semester- Final Exam 2025- 2026	Program: (Microbiology; Chemistry/ Microbiology) Level: 2 Date: 12 /1/2026 Time: 2 h	
Course title: Bacteriology		Cod: 271 B	
Instructor: Prof. Dr. Mohamed Hemida Abd-Alla			
Important:	No. of Pages: 5	No. of questions:5	Total Mark: 50 degrees

General Instructions: -Answer the following questions in space provided.

Q1. Place a tick \checkmark in the correct answer (Ten only). 10 Marks

- Which of the following signaling molecules cause shepherd's crook root hairs?
a. Lipopolysaccharides b. *Exopolysaccharides* c. Lectins d. *lipo-chitooligosaccharide*
- The initial signaling molecules secreted by legume root to attract compatible *Rhizobium*?
a. Flavonoids b. Auxins c. Cytokinins d. Gibberellins
- Which is true about bacterial transcription elongation?
a. RNA made 3'→5' b. DNA read 5'→3' c. RNA made 5'→3' d. DNA unwinds after transcription
- Which of the following is a phototrophic nitrogen fixer??
a. *Clostridium* b. *Azotobacter* c. *Azospirillum* d. *Rhodospirillum*
- Which organism is the primary cause of dental carries?
a. *Streptococcus mutans* b. *Streptococcus lactis* c. *streptococcus pyogenes* d. *Bacillus anthracis*
- Which protein helps *Rhizobium* attach to root hairs?
a. Lectin b. Rhicadhesin c. Nod D d. Nitrogenase
- Which bacteria use axial filaments for motility?
a. *Spirillum* b. *Spirochaeta* c. *Vibrio* d. *Cytophaga*
- Which bacteriophage type is involved in specialized transduction?
a. Lytic b. Temperate c. Virulent d. Filamentous
- Which DNA sequence in bacteria is the binding site for RNA polymerase to start transcription?
a. Operator b. promoter c. attenuator d. Structural Gene
- What is the role of *RecA* in bacteria?
a. DNA replication b. DNA degradation c. DNA recombination d. RNA synthesis

Q2. Write the suitable definition for each scientific term.

10 Mark

No	Scientific term	Definition
1	Germ theory	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
2	Ammonification and denitification	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
3	Chemoautotrophic bacteria	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
4	High frequency recombination	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
5	Competitive inhibitor	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

Q3. Give reason(s) in space "provided below" for each of the following: (10 Mark)

1. Transcription regulation is important for bacteria.

2. Sulfa drugs kill both Gram-negative and Gram-positive bacteria.

3. Mycoplasma is not affected by penicillin.

4. Gram-negative bacteria appear red after Gram staining.

5. Nodule primordia form spherical or elongated nodules.

6. Pathogenic bacteria are killed by phosphonomycin.

7. Fastidious organisms require complex media.

8. Chemoheterotrophs depend on organic compounds for growth.

9. Obligate aerobes require oxygen for survival.

10. Ionizing radiation kill microbe.

KK

Q4. Write an Account in provided space in each of the following: (1Mark each)

1. Nitrification

2. Inducible Enzyme

3. Nitrogenase

4. Chemoheterotrophic bacteria

5. Plasma membrane and pathogenicity

6. Exotoxin

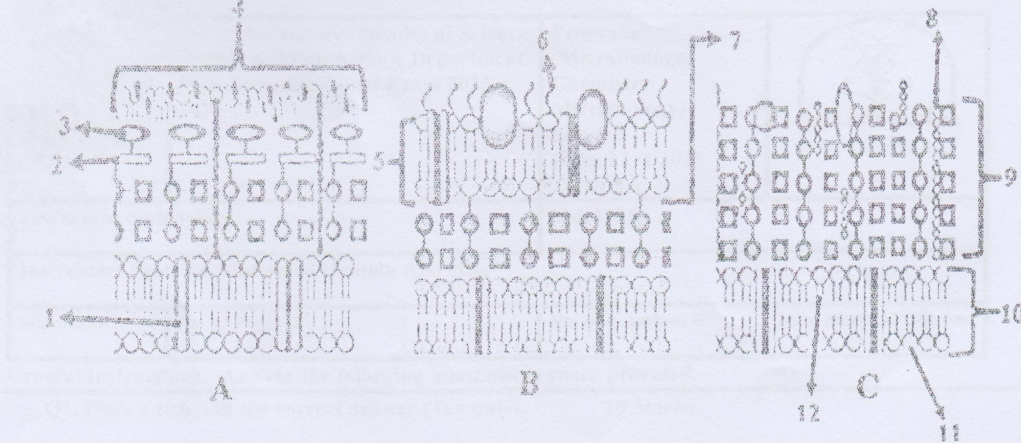
7. lactose operon

8. Transformation

9. Division of Micrococcus

10. Phosphate-solubilizing bacteria

Q5. Look at the diagram provided and answer the following: 10 Marks



1. Identify each of the labeled structures from 1-12 in the Panels A, B and C (6 Marks)

1	2	3	4
5	6	7	8
9	10	11	12

2. Clarify what Panels A, B, and C refer to, and which staining techniques are used to identify them. (1/2 Mark).

Panel	Represents	Staining Technique
A		
B		
C		

3. State one function of structures Number 9 and 10. (1/2 Mark)

4. Which structure is more sensitive to penicillin, and which is more resistant? (1/2 Mark)



5. Which structure is responsible for the production of endotoxins? (1/2 Mark)

6. What is the chemical composition of structure 9 (1/2 Mark)

8. Give the scientific name of each representative species and the disease it causes (1.5 Mark)

Panel	Scientific Name	Disease
A		
B		
C		

Good Luck
Prof Dr Mohamed Hemida Abd-Alla

	Assiut University - Faculty of Science First Semester - Final Exam 2025-2026	Program: Biotechnology 2 nd Level Date: 12/1/2026 Time: 2 h.	
	Botany and Microbiology Department	Code: 209BT	
Course Title: Plant cell			
Instructors: Prof. Dr. Taha Ramadan			
Important:	No. of pages 2	No. of questions 4	Total Marks: 50 degree

Answer the following questions:

Q1: Choose the correct answer: (20 Marks)

- 1- Nuclear membrane re-forms around each cluster of chromosomes in.....
a) metaphase b) telophase c) anaphase d) prophase
- 2- The polar head group of glycosylglycerides which is the main lipid component of plastids membrane is consists of
a) galactose b) digalactose c) sulfated galactose
d) phosphate group e) a or b or c f) a or d
- 3- Which of the following is absent from prokaryotic cells?
a) ribosomes b) cell wall c) plasmids d) rough endoplasmic reticulum
- 4- What of the following present in the cell vacuole
a) inorganic ions b) sugars c) enzymes d) all present
- 5- The cell wall of eukaryotic cells did not compose of
a) lignin b) pectin c) cellulose d) mucopolysaccharide
- 6- The intrinsic protein present in the cell membrane mainly functions as
a) receptor b) channels c) pores d) enzymes
- 7- All secretory proteins and most integral membrane proteins have signal peptide sequence at the amino-terminal end of the chain.
a) hydrophilic b) lipophobic c) hydrophobic d) hygroscopic
- 8- Each chromosome have DNA.
a) indefinite b) one c) <100 d) > 10
- 9- What is produced during transcription?
a) RNA molecules b) DNA molecules
c) RNA polymerase d) proteins
- 10- Which of the following are found in both DNA and RNA?
a) phosphate groups, guanine, and cytosine
b) ribose, phosphate groups, and adenine
c) phosphate groups, guanine, and thymine
d) deoxyribose, phosphate groups, and guanine
- 11- Which of the following surround the central vacuole of the plant cell
a) apoplast b) tonoplast c) symplast d) ectoplast
- 12- Nuclear DNA replicates in the phase.
a) G2 phase b) Anaphase c) M phase d) S phase
- 13- The condensation of chromosomes is observed in
a) Anaphase II b) Anaphase I c) Prophase I d) Metaphase I



- 14- is the longest stage in the cell cycle.
a) Metaphase b) Interphase c) Anaphase d) None of these
- 15- Which of the following is a function of the Golgi apparatus?
a) to make secretory products b) to aid endocytosis
c) to synthesise ATP d) to make proteins from amino acids
- 16- Synapsis is defined as the pairing of
a) Acentric chromosomes b) Any chromosomes
c) Homologous chromosomes d) Non-homologous chromosomes
- 17- Which of these structures contains RNA but not DNA?
a) ribosome b) nucleus c) chloroplast d) mitochondrion
- 18- Which of the following is concerned with the synthesis and transport of lipids in the cell?
a) rough ER b) Golgi apparatus c) lysosome d) smooth ER
- 19- Which structures are found in all types of living cells?
a) Ribosomes and cell membranes b) Cell membranes and cell walls
c) Cell walls and ribosomes
- 20- Chromosome structure can be observed best during
a) Metaphase b) Telophase c) Prophase d) Anaphase

Q2) Answer three only: (3 x 5= 15 Marks)

- 1) Draw a labelled diagram showing the structure and function of Golgi apparatus.
- 2) Compare between Anaphase I and Anaphase II.
- 3) Draw a sketch illustrating the sequential steps involved in sequestration and secretion of proteins in a plant cell.
- 4) What is the chemical composition of a plant cell wall.

Q3) Write briefly in three points only: (3 x 5= 15 Marks)

- 1) General structure of the plant cell wall – Explain the methods by which it increases in thickness and area.
- 2) Different groups of cell membrane proteins.
- 3) Structure (with drawing), function and pigments of chloroplast.
- 4) The main events that take place during the five periods of prophase I.

Good Luck

Prof. Dr. T. Ramadan



Botany & Microbiology Department
Final Exam for Undergraduate Students
First Semester 2025/2026 Academic Program
Academic Program: Biotechnology
Course Title: Introduction to Biotechnology

Program: Biotechnology
Level : Two
Date: 17/1/2026
Time: Two Hours
Course Code: 201 BT
Total Mark: 50 Marks

No. of pages: Two

No. of questions: Four

Total Mark: 50 Marks

ANSWER ALL OF THE FOLLOWING QUESTIONS [50 MARKS]

I. Select the most correct answers of the following [10 Marks]:-

1. Biotechnology has .....colors applied in every fields.			
a. two	b. eleven	c. five	d. seven
2. Microorganisms used in white biotechnology includes.....			
a. yeast	b. bacteria	c. fungi	d. all the flowered points
3. The human healthcare biotechnology is cold biotechnology.			
a. white	b. black	c. golden	d. red
4. Microorganism are biodegrade the pollutants by.....			
a. extracellular enzyme	b. adsorption on the cell wall	c. cell accumulation	d. all the flowered points
5. The basic techniques used in biotechnology includes			
a. Tissue culture	b. Genetic engineering	c. Metabolic engineering	d. all the flowered points
6. The recombinant penicillin is produced by.....			
a. transfer the gene from fungus to yeast	b. antagonism	c. tissue culture	d. genetic engineering
7. By red biotechnology we produced.....			
a. anticancer	b. antibiotic	c. immune modulators	d. all the flowered points
8. The symbiotic between plant and microorganism enhance the plant defiance against			
a. salinity	b. temperature	c. pathogens	d. biotic & abiotic stress
9. Green biotechnology occurs by			
a. selective breeding	b. GM crop	c. tissue culture	d. all the flowered points
10. Geneting engineering in medicine used for prödution of recombinant yeast			
a. insulin	b. growth hormone	c. interferon	d. all the flowered points



Botany & Microbiology Department
Final Exam for Undergraduate Students
First Semester 2025/2026 Academic Program
Academic Program: Biotechnology
Course Title: Introduction to Biotechnology

Program: Biotechnology
Level : Two
Date: 17/1/2026
Time: Two Hours
Course Code: 201 BT

No. of pages: Two

No. of questions: Four

Total Mark: 50 Marks

II. Compare between THREE ONLY of the following [15 Marks].

1. Upstream and downstream processing in white biotechnology.
2. Old, traditional, and recent biotechnology.
3. Soft and hard core used in green biotechnology.
4. Different definition of biotechnology.

III. Discuss the following [15 Marks].

1. Different steps of production of recombinant insulin?
2. Different definitions of fermentation.
3. Different types of wastes treated in grey biotechnology.

IV. Answer with True (T) or False (F) [10 Marks]:-

1.	Green biotechnology occurs by selective breeding; GM crop; and tissue culture.	(T)	(F)
2.	Vinegar is produced from two microorganisms in assist relationships.	(T)	(F)
3.	Recombinant insulin is used against diabetes.	(T)	(F)
4.	Grey biotechnology is related to production of green crops.	(T)	(F)
5.	Recombinant growth hormone is used as anti-corona virus.	(T)	(F)
6.	Penicillin antibiotics are produced by <i>Penicillium chrysogenum</i> during competition.	(T)	(F)
7.	Treatment of environmental pollutants occurs physically only.	(T)	(F)
8.	Animal feeding biotechnology is applied for improved meat, milk yield, and quality.	(T)	(F)
9.	Biological treatments of pollutants are called gray biotechnology.	(T)	(F)
10	White biotechnology uses microbial biomass only.	(T)	(F)

57



Botany & Microbiology Department
Final Exam for Undergraduate Students
First Semester 2025/2026 Academic Program
Academic Program: Biotechnology
Course Title: Introduction to Biotechnology
No. of pages: Two

Program: Biotechnology
Level : Two
Date: 17/1/2026
Time: Two Hours
Course Code: 201 BT

No. of questions: Four

Total Mark: 50 Marks

ANSWER ALL OF THE FOLLOWING QUESTIONS [50 MARKS]

I. Select the most correct answers of the following [10 Marks]:-

1. Biotechnology has .....colors applicated in every fields.			
a. two	b. eleven	c. five	d. seven
2. Microorganisms used in white biotechnology includes.....			
a. yeast	b. bacteria	c. fungi	d. all the flowered points
3. The human healthcare biotechnology is cold biotechnology.			
a. white	b. black	c. golden	d. red
4. Microorganism are biodegrade the pollutants by.....			
a. extracellular enzyme	b. adsorption on the cell wall	c. cell accumulation	d. all the flowered points
5. The basic techniques used in biotechnology includes			
a. Tissue culture	b. Genetic engineering	c. Metabolic engineering	d. all the flowered points
6. The recombinant penicillin is produced by.....			
a. transfer the gene from fungus to yeast	b. antagonism	c. tissue culture	d. genetic engineering
7. By red biotechnology we produced.....			
a. anticancer	b. antibiotic	c. immune modulators	d. all the flowered points
8. The symbiotic between plant and microorganism enhance the plant defiance against			
a. salinity	b. temperature	c. pathogens	d. biotic & abiotic stress
9. Green biotechnology occurs by			
a. selective breeding	b. GM crop	c. tissue culture	d. all the flowered points
10. Geneting engineering in medicine used for production of recombinant yeast			
a. insulin	b. growth hormone	c. interferon	d. all the flowered points

CO



Botany & Microbiology Department
Final Exam for Undergraduate Students
First Semester 2025/2026 Academic Program
Academic Program: Biotechnology
Course Title: Introduction to Biotechnology
No. of pages: Two

No. of questions: Four

Program: Biotechnology
Level : Two
Date: 17/1/2026
Time: Two Hours
Course Code: 201 BT

Total Mark: 50 Marks

II. Compare between THREE ONLY of the following [15 Marks].



1. Upstream and downstream processing in white biotechnology.
2. Old, traditional, and recent biotechnology.
3. Soft and hard core used in green biotechnology.
4. Different definition of biotechnology.

III. Discuss the following [15 Marks].

1. Different steps of production of recombinant insulin?
2. Different definitions of fermentation.
3. Different types of wastes treated in grey biotechnology.

IV. Answer with True (T) or False (F) [10 Marks]:-

1.	Green biotechnology occurs by selective breeding; GM crop; and tissue culture.	(T)	(F)
2.	Vinegar is produced from two microorganisms in assist relationships.	(T)	(F)
3.	Recombinant insulin is used against diabetes.	(T)	(F)
4.	Grey biotechnology is related to production of green crops.	(T)	(F)
5.	Recombinant growth hormone is used as anti-corona virus.	(T)	(F)
6.	Penicillin antibiotics are produced by <i>Penicillium chrysogenum</i> during competition.	(T)	(F)
7.	Treatment of environmental pollutants occurs physically only.	(T)	(F)
8.	Animal feeding biotechnology is applied for improved meat, milk yield, and quality.	(T)	(F)
9.	Biological treatments of pollutants are called gray biotechnology.	(T)	(F)
10.	White biotechnology uses microbial biomass only.	(T)	(F)

	Assiut University- Faculty of Science First Semester- Final Exam 2025-2026 Botany and Microbiology Department	Program: Biotechnology Level: (2) Date: 10/1/2026 Time: 2 h	
	Course Title: Plant Morphology and Anatomy Instructors: Prof. M. Alaa El-Din Elmagdy	Code: 221B	
Important:	No. of pages: 4	No. Of questions:	Total Mark: 50 degrees

Part I : Plant Morphology

Q1- Answer FIVE questions only: (20 marks - 4 marks/each)

- A. Describe the structure of a seed? Differentiate between endospermic and exendospermic seeds?
- B. Describe with drawing different types of venation found in Angiospermic leaves?
- C. Classify buds depending up on their location on the plant body and their nature? Give their function?
- D. What are the two major types of roots? How do they differ from one another? Name and draw two types of each one?
- E. Define seed dormancy and mention its causes?
- F. Write an account of underground stems? Mention the purpose of their modification?

Part II : Plant Anatomy

Answer all the following questions: (30 Marks)

Q2: Draw with labelled diagrams all of the following: (8 Marks)

- A. Any three types of a simple unspecialized tissue.
- B. Any three types of a simple tissue of secondary origin help in support of woody plants.
- C. Pattern of lignification in xylem vessels.
- D. Two types of simple tissue support fast growing organs of plants.

Q1-Choose the correct Answer & put your answer in table like the Model table below: (10 Marks)

- 1) Stomata with numerous subsidiary cells around the guard cells are:
(a)Paracytic. (b) Diacytic. (c) Anisocytic. (d) Actinocytic.
- 2) Stomata without subsidiary cells are .
(a)Paracytic. (b) Diacytic. (c) Anisocytic. (d) Anomocytic.

- 3) A protective tissue of secondary origin replacing the ruptured epidermis is _____.
 (a) Periderm. (b) Epidermis. (c) Phelloderm. (d) Phellogen.
- 4) Meristematic tissues are characterized by _____.
 (a) Abundant cytoplasm. (b) Actively dividing (c) Large nucleus (d) All of the previous
- 5) The bases of classification of meristems are _____.
 (a) Their function. (b) Their origin (c) Their position (d) All of the previous.
- 6) In old plants, gaseous exchange takes place through _____.
 (a) Lenticles. (b) Stomata. (c) Hydathodes. (d) { (a) & (b) }.
- 7) Parenchyma is considered a primitive tissue because _____.
 (a) Being potentially meristematic (c) Not functionally specialized.
 (b) The other cells originate from it (d) All of the previous.
- 8) Root shows the following distinctive characters _____.
 (a) Xylem is exarch. (c) Collateral bundles.
 (b) Vascular bundles are radial. (d) { (a) & (b) }.
- 9) In old plants, gaseous exchange takes place through _____.
 (a) Lenticles. (b) Stomata. (c) Hydathodes. (d) { (a) & (b) }.
- 10) Amphicribal bundles (xylem is surrounded by phloem) are present in _____.
 (a) Monocot. stem. (b) Dicot. stem. (c) Ferns. (d) { (a) & (b) }.
- 11) Cambium is normal in position but abnormal in its activity in case of : _____.
 (a) *Bignonia*. (b) *Bougainvillea*. (c) *Leptadenia*. (d) { (a) & (c) }.
- 12) Used as spice: _____.
 (a) Quinine. (b) Dalchini. (c) Callose. (d) none of the previous.
- 13) Important in the treatment of Malaria is _____.
 (a) Quinine. (b) Dalchini. (c) Callose. (d) All of the previous.
- 14) A monocot. can be differentiated from the dicot. on the basis of _____.
 (a) Phyllotaxy. (b) Vascular bundles. (c) Vernation. (d) Aestivation.
- 15) Secretory tissue system include the following _____.
 (a) Digestive glands (b) Nectaries (c) Hydathodes (d) All of the previous
- 16) A heartwood is more durable than sapwood because _____.
 (a) The reduction of food material in its cell (c) blocking of the vessel cavities by tyloses.
 (b) Resistance to attacking by microorganisms (d) All of the previous.
- 17) The hydathodes are function in _____.
 (a) Guttation. (b) Protection. (c) Respiration. (d) { (a) & (b) }.
- 18) Dumb-bell shaped guard cells are characteristic of stomata of _____.
 (a) Cyperaceae. (b) All angiosperms. (c) Gymnosperms. (d) Dicotyledons.
- 19) Diagnostic features of a Monocot. stem are _____.
 (a) Undifferentiated ground tissue. (c) Endarch xylem.
 (b) Bundles are closed collateral & scattered. (d) All of the previous.

- 20) The stem of angiosperms contains the following bundels
 (a) Open collateral (b) Closed collateral (c) Bicollateral (d) All of the previous

1	2	3	4	5	6	7	8	9	10	....	....

Q2: Mark True (T) or False (F) for the following & put your answer in a table like the Model table above: (7 Marks)

- (1) Xylem vessels are narrow, hard and strongly lignified.
- (2) Sieve tubes have specialized perforated cross wall (sieve plates) on the end walls.
- (3) Collenchyma is considered compound and primitive tissue.
- (4) Sometimes, sieve tube loses its function.
- (5) Sclerids develop from meristem while fibres develop from parenchyma.
- (6) The xylem of Gymnosperms consists of tracheids and vessels.
- (7) Secondary growth doesn't occur in all angiosperms.
- (8) In Schizogenous glands cavities originate by disintegration of cells.
- (9) Aerenchyma is common in submerged Hydrophytes.
- (10) Lateral meristem contributes increasing the length of the plant axis.
- (11) Dead supporting tissue which present in rapidly growing organs in plants is collenchyma .
- (12) Opening and closing of stomata is a direct response to increase or decrease in the osmotic concentration of the guard cells.
- (13) Secondary meristems originated from permanent tissue.
- (14) Heartwood is commercially less valuable and useful than sapwood.
- (15) Latex ducts is composed of several tubes arranged longitudinally and may be branched.



Q3: Match the items given in column A with the responses given in column B & put your answer in table like the Model table: (5 Marks)

Column A

Column B

- | | |
|----------------------------|--|
| 1- Annual rings | (A) Applied to all tissues outside the vascular cambium of stem. |
| 2- Amphistomatic | (B) Render the wood to attack by the organisms of decay. |
| 3- Collenchyma | (C) Stomata are found on both surfaces of leaf. |
| 4- Procambium | (D) Living mechanical tissue devoid of lignin. |
| 5- Protoderm | (E) Develops as patches named scale bark. |
| 6- Rhytidome | (F) Causes sieve tube losses its function. |
| 7- Interfascicular cambium | (G) Gives rise to the vascular cylinder. |
| | (H) Arises from permanent cells returned meristematic. |
| 8- Acetylcholine | (I) Determine the age of a tree. |
| 9- Histamine | (J) Gives rise to the epidermis. |
| 10- Tyloses | (K) Irritation of the skin. |
| 11- Callose | (L) Stinging hair. |
| 12- Bark | |

End of Exam

“Good Luck”

Prof. M. H. Elmagdy



Assiut University- Faculty of Science
Botany & Microbiology Department
Frist Semester- Final Exam.: 2025-2026

Program: Biotechnology
Level : (2)
Date: 23 /1/2026
Time: 2 h



Course Title: Mycology

Code: 207BT

Instructors: Prof. Dr. Mohamed Ahmed Abdel- Sater

Important:

No. of pages 2

No. of questions 4

Total Marks: 50 degree

Q1- With drawing (if possible) compare between three only of the following: (21 marks)

- 1- Teleomorphs of *Penicillium* and *Aspergillus* groups. (7)
- 2- Oospore formation and Zygospores from immotile isogametes. (7)
- 3- Different genera in Families: Mucoraceae and Saprolegniaceae (7)
- 4- Sexual and asexual fruiting bodies. (7)

Q2: With illustration explain three only of the following: (9 marks)

- 1- Origin of conidia. (3)
- 2- Fragmentation in fungi. (3)
- 3- Asexual life cycle of Ergot disease. (3)
- 4- The process phases of sexual reproduction in fungi. (3)

Q3: With illustration only answer on ONE only of the following:- (10 marks)

- 1- Ascocarps of most species of Erysiphaceae are provided with appendages that vary in length and character and that, together with the number of asci produced, form the bases for generic separation. Explain this sentence? (10)
- 2- Family: Peronosporaceae includes a number of genera that are distinguished from each other by the way of sporangiophores are branched, as well as by the way of the sporangia are carried. Discuss this statement? (10)

Q4: -Choose the correct answer for ten only of the following: (one mark each) (10 Marks)

- 1- Asexual spores produced by Ascomycota are
 - a. Conidia
 - b. Ascospores
 - c. Basidiospores
 - d. Sporangiospores
- 2- Which of the following fungi producing ascostroma with numerous perithecia
 - a. *Nectria fockeliana*
 - b. *Claviceps purpurea*
 - c. *Morchella esculenta*
 - d. None of them

انظر خلفه



3- Which of the following contains globose, scattered asci

- a. Sclerotium
- b. Cleistothecium
- c. Perithecium
- d. Stroma

4- Which of the following penicilli cause spoilage of garlic fruits?

- a. *Penicillium expansum*
- b. *P. marnefii*
- c. *P. allii*
- d. *P. digitatum*

5- Monoverticillate penicilli related to Subgenus.....

- a. *Penicillium*
- b. *Aspergilloides*
- c. *Furcatum*
- d. *Divaricatum*

6- The standard ending for subdivision of fungi is.....

- a. -aceae
- b. -ales
- c. -mycotina
- d. none of the above

7- A fungus used for production of Japanese sake

- a. *Aspergillus terreus*
- b. *Penicillium chrysogenum*
- c. *Aspergillus oryzae*
- d. *Aspergillus niger*

8- Which of the following fungi form arthrospores

- a. *Taphrina deformans*
- b. *Penicillium citrinum*
- c. *Geotrichum*
- d. *P.requfortii*

9- Fungi that mainly live on living tissues are called

- a. Obligate parasite
- b. Facultative saprophyte
- c. Obligate saprophyte
- d. Symbioses

10- The union of the two gametes from the different mycelia is called



- a. Homothallism
- b. Heterothallism
- c. Diplantism
- d. Hollocarpus

11- Which of the following fungi produces Lovastatin?

- a. *Aspergillus niger*
- b. *Penicillium citrinum*
- c. *Aspergillus terreus*
- d. *Aspergillus flavus*

With best wishes

Pro. Mohamed Ahmed Abdel- Sater

	Assiut University- Faculty of Science First Semester- Final Exam 2025-2026 Department of Botany and Microbiology	Program: All Level: (2) Date: 15/1/2026 Time: 2 h	
Course Title: General Microbiology		Code: B291	
Instructors: Prof. Dr. Fathy Mohamed Sayed Morsy ; Dr. Somaya Mahmoud Mohammed Nassar			
No. of pages 10	Answer in a bubble sheet	No. of Points: 50	Total Marks: 50

Choose the Correct Answer for the following questions. (50 points)
(Answer in a bubble sheet. Each question worth one mark)

[Part A]: Virology and Bacteriology (25 points)

1- Which one of the following statements is TRUE about Viruses?

- a- All animal viruses contain deoxyribonucleic acid (DNA) as their genetic material
- b- The term "cell" is not used to describe viruses
- c- All viruses cannot be isolated in a crystalline form
- d- All plant viruses contain ribonucleic acid (RNA) as their genetic material.

2- Prokaryotes are classified into domain(s).

- a- 2
- b- 4
- c- 3
- d- 1

3- The cell wall of Gram-positive bacteria is broken down and digested by with high efficiency.

- a- amylase
- b- invertase
- c- lysozyme
- d- lipase

4- What is the main characteristic of the lytic cycle of bacteriophages?

- a- The viral DNA integrates into the host's chromosome
- b- Remains dormant
- c- The host cell is rapidly destroyed
- d- All the above answers are correct

5- Given below are two statements:

Statement I: Some bacteria produce antibiotics to kill other bacteria.

Statement II: The rabies vaccine prevents rabies by helping your body create antibodies to fight the virus, administered either before potential exposure (pre-exposure prophylaxis) to high-risk individuals or after an exposure, such as a bite or scratch (post-exposure prophylaxis).

In light of the above statements, choose the correct answer from the options given below:

- a- Both Statement I and Statement II are false
- b- Both Statement I and Statement II are true
- c- Statement I is false and Statement II is true
- d- Statement I is true and Statement II is false

6- What is the primary function of endospore in the endospore forming bacteria?

- a. Reproductive method
- b. Nutrient storage
- c. Survival mechanism
- d. Oxygen production

7- The absence of peptidoglycan in certain bacteria, like those in the genus, makes them naturally resistant to, as these drugs work by inhibiting the synthesis of that specific cell wall structure.

- a. *Staphylococcus* – fluoroquinolones antibiotics
- b. *Salmonella* – aminoglycosides antibiotics
- c. *Mycobacterium* - sulfonamide antibiotics
- d. *Mycoplasma* - beta-lactam antibiotics

8- The bacterium *tetani* is known to cause tetanus.

- a- *Clostridium*
- b- *Streptococcus*
- c- *Bacillus*
- d- *Neisseria*

9- The Chamberland filter (the first described bacterial filter) led to the discovery of

- a. Bacteria
- b. Viruses
- c. Archaea
- d. Fungi

10- Given below are two statements:

Statement I: Meiosis occurs in bacteria

Statement II: A prokaryotic cell does not contain a nucleus or other membrane-enclosed organelles

- a. Both Statement I and Statement II are false
- b. Both Statement I and Statement II are true
- c. Statement I is false and Statement II is true
- d. Statement I is true and Statement II is false

11- The most famous *Spirochaetes* is which causes syphilis. It moves by means of a special type of flagella called found in the periplasm.

- a- *Spirillum volutans* - exoflagella
- b- *Treponema pallidum* - axial filaments or endoflagella
- c- *Escherichia coli* - pili
- d- *Actinomyces* - exoflagella

12- Most bacteria have chromosome(s).

- a- 23
- b- 5
- c- 46
- d- 1

13- Bacteria can share genes with each other, and this is called horizontal gene transfer or horizontal evolution. This process can occur via

- a. transformation
- b. transduction
- c. conjugation
- d. All the above answers are correct

14- are both respiratory viruses that share similar symptoms, but they are caused by different virus families and can differ in their contagiousness and severity

- a- Herpes simplex virus (HSV) and HIV (human immunodeficiency virus)
- b- Coronaviruses (like SARS-CoV-2) and influenza viruses
- c- Varicella-zoster virus (VZV) and Ebola virus
- d- Rabies virus and Poliovirus

15- The capsule in *Bacillus anthracis* is composed of

- a. Polysaccharides
- b. Lipopolysaccharides
- c. Polyglutamic acid
- d. Peptidoglycan

12

16- Given below are two statements:

Statement I: A prokaryotic flagellum rotates like a propeller, using a rotary motor powered by ion gradients to propel the cell through its environment, unlike eukaryotic flagella, which use a bending motion driven by ATP.

Statement II: All types of cells, either prokaryotic or eukaryotic cells, are enclosed by a membrane called plasma membrane or cell membrane.

In light of the above statements, choose the correct answer from the options given below:

- a. Both Statement I and Statement II are false
- b. Both Statement I and Statement II are true
- c. Statement I is false and Statement II is true
- d. Statement I is true and Statement II is false

17- After contracting chickenpox and recovering from it in childhood, the causative remains inactive in the nervous tissue near the spinal cord and brain. Years later, it may suddenly reactivate, causing shingles.

- a- Variola virus
- b- Ebola virus
- c- Varicella-zoster virus
- d- Poliovirus

18- is the most common type of reproduction in bacteria.

- a- Sporulation
- b- Meiosis
- c- Conjugation
- d- Binary fission

19- Examples of zoonotic viruses include

- a- Avian influenza (bird flu), Rabies and Ebola viruses
- b- Coronaviruses like MERS and SARS-CoV-2
- c- Both answers (a) and (B) are correct
- d- Lambda phage

20 *glutamicum* is widely known for the large-scale industrial production of amino acids, particularly L-glutamic acid and L-lysine

- a- *Mycobacterium*
- b- *Clostridium*
- c- *Corynebacterium*
- d- *Acetobacter*

21- Given below are two statements:

Statement I: *Helicobacter pylori* is called the stomach germ and is the most common cause of stomach ulcers

Statement II: *Staphylococcus aureus* does not produce toxins.

In light of the above statements, choose the correct answer from the options given below:

- a. Both Statement I and Statement II are false
- b. Both Statement I and Statement II are true
- c. Statement I is false and Statement II is true
- d. Statement I is true and Statement II is false

22- What is the primary function of the Hemagglutinin (H) protein in influenza viruses like H1N1 influenza virus?

- a. To help the virus attach to host cells
- b. To replicate the viral genome
- c. To destroy host cells
- d. To release new viral particles

23- Given below are two statements:

Statement I: Both the bacterium *Neisseria gonorrhoeae* (which causes gonorrhea) and the human immunodeficiency virus (HIV) are well-known examples of pathogens that can be sexually transmitted.

Statement II: Methicillin-resistant *Staphylococcus aureus* (MRSA) is any strain of *S. aureus* that has developed multiple drug resistance to beta-lactam antibiotics.

In light of the above statements, choose the correct answer from the options given below:

- a. Both Statement I and Statement II are false
- b. Both Statement I and Statement II are true
- c. Statement I is false and Statement II is true
- d. Statement I is true and Statement II is false

24- serovar Typhi is the specific bacterium that causes typhoid fever.

- a- *Salmonella enterica*
- b- *Shigella dysenteriae*
- c- *Pseudomonas aeruginosa*
- d- *Enterococcus faecalis*

25- Some of the smallest bacteria, such as, are only about 0.3 μm in size, comparable to the largest viruses.

- a- *Mycoplasma*
- b- *Spirillum*
- c- *Streptomyces*
- d- *Vibrio*

General of Microbiology (Code. No: B291)

(Part B Mycology)

I- Choose the correct answer

(25 Marks)

26- Fungi are called as they lack chlorophyll pigments and are incapable of photosynthesis, they digest food externally using digestive enzymes to break down their food and then absorb the liquid.

- a) heterotrophs b) thallophytes c) facultative anaerobic d) terrestrial

27- The obligate parasite soil-borne fungus that causes potato wart disease, which severely affects potato crops, is

- a) *Allomyces* sp b) *Plasmodiophora brassicae*
c) *Synchytrium endobioticum* d) *Pythium*

28- The parasitic fungi that grow on the surface of host cells and absorb food through haustoria are called (e.g., *Mucor*, *Erisphae*).

- a) ectoparasites b) endoparasites c) facultative parasites d) obligate parasites

29- The fungal infection may be designated as exogenous or endogenous in origin in the classification of fungi based on the

- a) medically important fungi b) route of acquisition
c) virulence d) spore production

30- When group of aquatic fungi produce two different types of zoospores during their life cycle this known as.....

- a) diplanetamism b) biflagellated c) monoplanetamism d) uniflagellated

31- Rhizomorphs are root-like, compactly interwoven hyphae with a distinct growing tip. They help ine.g., *Armillaria mellea*.

- a) absorption and penetration b) hydrolysis the carbohydrates
c) storage compounds (Food reserves) d) all choices are correct

32-is a type of spores that are formed by rounding off and enlargement of the terminal or intercalary cells of a hypha. These can be single or formed in chains. They do not separate from the hyphae but remain viable and germinate under favorable conditions.

- a) Zoospores b) basidiospores c) Ascospores d) Chlamydo spores

33- Fungi are called when both male and female gametes are produced in the same individual, can fertilize each other during reproduction.

- a) heterothallic b) holocarpic c) homothallic d) Eucarpic

34- Slime moulds differ substantially from the Eumycota as

- a) the thallus is known as plasmodium b) all choices are correct
c) no definite cell walls d) the mode of nutrition is ingestion

35- Mycelium that contains numerous nuclei, lying in a common mass of cytoplasm, without a cross-wall in the hyphae, is known as.....E.g, oomycetes and zygomycetes.

- a) filamentous b) all choices are correct c) coenocytic d) dimorphic

36-The genera of Saprolegniales can be identified based on.....

- a) shape of zoosporangium b) sterigmata c) exudates d) growth type

37- *Albugo candida* is an obligate parasite fungus that can causeon brassicas

- a) club root b) white rust c) downy mildews d) saprolegniosis

38-Zygomycetes is characterized by

- a) formation of flagellated spores b) Mycelia or hyphae are septate
c) Cell walls contain chitin d) Reproduce asexually by zygospores

39- The rhizoids of *Absidia* fungi are

- a) absent b) opposite to sporangiophores
c) covered with appendages d) Alternate with sporangiophores

40- One of the characters that used in the description of *Aspergillus* is

- a) vesicle b) zygospores
c) mode of zoospores discharge d) type of oospores

41- Zygospores are covered with mycelial appendages infungi.

- a) *Phytophthora* b) *Rhizopus* c) *Plasmopara* d) *Absidia*

42- *Claviceps purpurea* fungi can parasite on graminaceous plants causing disease.

- a) ergot b) rust c) Cordiceps d) powdery mildews

43- The mycelia of Ascomycota may form prosenchyma or pseudoparenchyma tissues, which may organize together into fertile structures such as those containing spores e.g., (pycnidium, acervulus, sporodochium, synnemata).

- a) basidiospore b) asexual c) sexual d) flagellated

44- The identification of Erysiphaceae genera is based on.....

- a) Number of asci within ascoma b) Penicillus type
c) Mode of zoospores discharge d) Location of Rhizoids

45- Thefermentation as Kefir is achieved by a yeast and a bacterial species (*Streptococcus* sp.), which acts on the milk sugar lactose, turning it into ethanol and CO₂.

- a) symbiotic b) saprophytic c) ectoparasites d) endoparasites

46- The Ascomycetes that are closely associated with insects and could kill insects under appropriate environmental conditions, and are being studied for use as biological control, are known asfungi.

- a) coprophilous b) aquatic c) entomopathogenic d) mycoparasitic

47-are defined by the production of exposed asci organized in a disc, cup, or club-shaped ascocarp, an apothecium

- a) Pyrenomycetes b) Discomycetes c) Plectomycetes d) saprophytic

14

48- Basidiomycetes are characterized by producing sexual spores on the outside of a specialized spore-producing structure called

- a) basidium b) apothecium c) cleistothecium d) perithecium

49-Ascoma ofare formed of three layers: Hymenium layer, Subhymenium layer, and Excipulum.

- a) *Aspergillus* b) *Phytophthora* c) *Plasmodiophora* d) *Peziza*

50- The Ergotamine is a compound produced byand is a powerful vasoconstrictor, which means it constricts the blood vessels and thus the blood flow.

- a) *Penicillium ruqefortii* b) *Claviceps purpurea*
c) *Aspergillus oryzae* d) *Urocystis cepulae*

End of Exam

Best Wishes

Prof. Dr. Fathy Mohamed Sayed Morsy

Dr. Somaya Mahmoud Mohammed Nassar



Assiut University- Faculty of Science
First Semester- Final Exam 2025-2026
Botany and Microbiology Department

Level: (2)
Date: 22/1/2026
Time: 2 h



Course Title: Economic Botany		Code: B211	
Instructors: Dr. Mona Fathi AbdElmowla Dawood			
Important	No. of pages 3	No. Of questions 3	Total Mark:50 degree

السؤال الاول: اختر الاجابة الصحيحة وضعها في الجدول المقابل
(1 درجة لكل نقطة)
اجب عن الاسئلة الاتية

1	اي بكتيريا تُعد الأكثر شيوعًا في إنتاج حمض الجلوتاميك؟ ا. <i>Escherichia coli</i> ب. <i>Clostridium spp</i> ج. <i>Corynebacterium glutamicum</i> د. <i>Lactobacillus spp</i>
2	الشعيرات الطويلة المنفصلة عن بذرة القطن تُسمى ا. الزغب ب. التيلة ج. القلف د. اللب
3	الكافيين مادة ----- ا. منومة ب. مثبطة ج. منبهة ومدرة للبول د. مسكنة
4	أي مما يلي يميز التخمر السوربوزي بالطريقة العميقة؟ ا. زمن تخمير طويل وناتج منخفض ب. تركيز سوربيتول منخفض ج. عدم الحاجة للتهوية د. زمن تخمير قصير وناتج مرتفع من السوربوز
5	تُعد الطريقة العميقة لإنتاج الخل أكثر كفاءة لأنها تعتمد على ----- ا. الأكسدة السطحية البطينية ب. تهوية قوية ونمو البكتيريا في معلق ج. استخدام البراميل الخشبية د. تقليل درجة الحرارة
6	ورق الصحف يُصنع غالبًا من ----- ا. عجينة السلفيت النقي ب. عجينة لب الخشب منخفضة الجودة ج. ألياف الكتان د. عجينة الصودا
7	السبب الرئيسي لإجراء عملية التعتيق للخل المنتج بالطرق السريعة هو ----- ا. زيادة الحموضة ب. قتل بكتيريا حمض الخليك ج. تكوين مركبات النكهة مثل الإستر د. منع ترسيب المواد العالقة
8	أي خاصية تميز الزيوت العطرية؟----- ا. غير متطايرة ب. تذوب في الماء ج. ثابتة كيميائيًا د. تتطاير ولها رائحة قوية
9	يُعد المولاس من أفضل المصادر الكربونية في صناعة الكحول لأنه----- ا. غني بالبروتين ب. يحتوي على نسبة عالية من السكريات ج. رخيص لكنه فقير غذائيًا د. لا يحتاج إلى معالجة
10	الزيوت التي تمتص الأكسجين وتجف عند تعرضها للهواء تُسمى----- ا. غير مجففة ب. نصف مجففة ج. مجففة د. دهون
11	السوربوز هو المركب الوسيط في تصنيع حمض الأسكوربيك بطريقة Reichstein الكلاسيكية. ا. صح ب. خطأ

12	الهدف من إضافة السلفيت في تخمر الجلوسرين هو ----- ا. زيادة إنتاج الكحول ب. تثبيط الأسيئالدهيد ج. تنشيط التنفس الهوائي د. زيادة نسبة السكر
13	التخمر المستمر يتم فيه إضافة الوسط الغذائي بنفس معدل خروج الناتج. ا. صح ب. خطأ
14	الفاكسينات من ----- أ. التقديرات الحيوية ب. الإضافات الغذائية ج. المنتجات البيولوجية د. المنتجات الكيميائية الصيدلانية
15	يلزم تقطير 20.000 رطل من الازهار للحصول على رطل من الزيت العطري ا.صح ب. خطأ
16	زيت الزيتون من ----- ا. الزيوت غير المجففة ب. الزيوت المجففة ج. الزيوت العطرية د. لا شيء مما سبق
17	تتكون ----- يستخرج منها زيت تربنتيني يستخدم كمطهر ومحد للأورام ا. البلاونا ب. الأشن ج. الصنوبر د. يلانج يلانج
18	----- اعلى الميكروبات انتاجا للمضادات الحيوية ا. البروتوزوا ب. البكتيريا ج. الفطريات د. الأكتينومييسيتات
19	في الطريقة الألمانية السريعة (Schutzenbach) ، تستخدم نشارة الخشب بهدف: ا. امتصاص الكحول ج. تقليل التهوية ب. زيادة السطح الحامل لبكتيريا حمض الخليك د. منع تكوين أم الخل
20	الجزء المستخدم من نبات الزنجبيل هو----- ا. الجذر ب. الريزومات ج. الأوراق د. الثمار
21	كل 100 جرام جلكوز ينتج 60-80 جرام حامض ستريك ثم يفصل علي هيئة سترات كالسيوم. ا. صح ب. خطأ
22	يتم إضافة ----- لاستكمال عملية التحويل الحيوي عند انتاج الهرمونات الستيرويدية ا. البروجستيرون ب. البيوتين ج. كربونات الصوديوم د. الزنك
23	----- المادة الفعالة في الثوم ا. السابونين ب. الجليسيريزين ج. الالسين د. الكركمين
24	أي من الآتي يُعد مثلاً على التخمرات البكتيرية اللاهوائية إنتاج ----- ا. حمض الستريك ب. حمض اللاكتيك ج. حمض الأوكساليك د. حمض الجلوكونيك
25	من العقاقير يتم استخراج المادة الفعالة من نبات اللحاح من ----- ا. القلف ب. الأبال ج. الاوراق د. الازهار

السؤال الثاني: اذكر باختصار خمس نقاط فقط مما يأتي (2 درجة لكل نقطة)

- (ا) المصادر الكربونية المستخدمة في صناعة الكحول مع ذكر العمليات التي تجري عليها قبل الاستخدام
- (ب) استخلاص حامض الستريك بعد عملية التخمير
- (ج) النواتج الثانوية لصناعة الكحول
- (د) التقسيم الكيميائي للنباتات الطبية
- (هـ) التعطين في الكتان
- (و) خطوات صناعة الورق

السؤال الثالث: اكتب ما تعرفه عن خمس نقاط فقط مما يلي (3 درجة لكل نقطة)

- (1) طرق نمو الميكروب
- (2) طرق تحضير الجلسرين
- (3) اذكر الطريقة الألمانية السريعة في صناعة الخل مع ذكر أقسام خزان التفاعل
- (4) ترويق وترشيح الخل
- (5) طرق التخمير السريوزي
- (6) مراحل إنتاج حمض اللايسين
- (7) العوامل المؤثرة في إنتاج حامض الجلوتاميك



..... End of Exam

والله ولى التوفيق

With my best wishes

Dr. Mona Fathi A. Dawood

Mona F. A. Dawood

	First Semester Exam. 2025/ 2026	 كلية العلوم جامعة أسيوط
Botany and Microbiology Department	Plant physiology (251 B) Second Level (Credit hours)	Time: 2 hours Total marks:50

في ورقة الإجابة يتم طمس (تسويد) الإجابة المختارة من قبل الطالب باستخدام القلم الجاف فقط

Q1): Choose the correct answer A, B, C or D: (One mark each)

- 1- Stomata of a plant open due to _____.
 - (a) Influx of potassium ions
 - (b) Influx of hydrogen ions
 - (c) Efflux of potassium ions
 - (d) Influx of calcium ions
- 2- Opening and closing of stomata is due to the _____.
 - (a) Hormonal change in guard cells
 - (b) Gaseous exchange
 - (c) Change in turgor pressure of guard cells
 - (d) Respiration.
- 3- The movement of ions against the concentration gradient will be _____.
 - (a) Active transport
 - (b) Osmosis
 - (c) Diffusion
 - (d) All of the above
- 4- In soil, water available for plants is _____.
 - (a) Gravitational water
 - (b) Hygroscopic water.
 - (c) Capillary water
 - (d) Chemically bound water
- 5- When a cell is fully turgid, which of the following will be zero?
 - (a) Turgor pressure
 - (b) Osmotic pressure
 - (c) Wall pressure
 - (d) Water potential
- 6- Which of these is NOT a primary macronutrient (NPK)?
 - (a) Potassium (K)
 - (b) Magnesium (Mg)
 - (c) Phosphorus (P)
 - (d) Nitrogen (N)
- 7- Magnesium is essential because it's a central atom in which molecule?
 - (a) DNA
 - (b) ATP
 - (c) Chlorophyll
 - (d) Starch
- 8- Stomata are pores on leaves that regulate what?
 - (a) Water absorption and CO₂ intake
 - (b) Gas exchange (CO₂ in, O₂ out) & water vapor
 - (c) Nutrient transport
 - (d) Photosynthesis location
- 9- Which mineral nutrient is crucial for energy transfer (ATP) and nucleic acid (DNA/RNA) synthesis?
 - (a) Sulfur (S)
 - (b) Manganese (Mn)
 - (c) Calcium (Ca)
 - (d) Phosphorus (P)

- 10- How is a macronutrient different from a micronutrient?**
 (a) Macronutrients are present in large quantities to help with plant growth
 (b) Macronutrients consist of the element's boron, chlorine, and manganese
 (c) Macronutrients are classified as trace elements
 (d) Macronutrients are only used by plants in small quantities
- 11- Which plant process is significantly impacted by zinc, as it acts as a catalyst in oxidation and conversion of starch to sugars?**
 (a) Nitrogen fixation (c) Carbohydrate metabolism
 (b) Stomatal closing and opening (d) Ion transport (only)
- 12- What is Molybdenum's primary role in plant nutrition?**
 (a) Photosynthesis (c) Nitrogen metabolism
 (b) Root growth (d) Water absorption
- 13- Which key enzyme, vital for converting nitrates, requires Molybdenum?**
 (a) Amylase (c) Chlorophyllase
 (b) Catalase (d) Nitrate reductase
- 14- The presence of an electric charge on colloidal particles is most definitively indicated by which phenomenon?**
 (a) Brownian movement (c) Electrophoresis
 (b) Osmosis (d) Tyndall effect
- 15- When silver nitrate (AgNO_3) solution is added to an excess of potassium iodide (KI) solution, the resulting AgI colloidal particles acquire a negative charge. Why?**
 (a) The Ag^+ ions are preferentially adsorbed
 (b) The NO_3^- ions are preferentially adsorbed
 (c) The I^- ions are preferentially adsorbed
 (d) The K^+ ions are preferentially adsorbed
- 16- What is Imbibition?**
 (a) Movement of water across a semi-permeable membrane.
 (b) Absorption of water by a solid substance (like a seed) due to attraction by colloidal particles.
 (c) Movement of water from high to low water potential
 (d) Release of water vapor from plant
- 17- Loss of water in liquid phase from the margin of leaf in many herbaceous plants occurs _____.**
 (a) Guttation (c) At noon
 (b) Cohesion-tension model (d) Transpiration
- 18- Net gain of ATP molecules in Glycolysis is _____.**
 (a) 6 ATP (c) 4 ATP
 (b) 2 ATP (d) 8 ATP

- 19- The substrate for ribulose biphosphate carboxylase is _____.
- (a) 3PGA (b) Glycolate (c) RuBP Nucleus (d) All of the above
- 20- Conjugated enzyme is composed of _____.
- (a) Apoenzyme (b) Coenzyme (c) Cofactor (d) All the preceding
- 21- Electrons acceptor of photosystem I is
- (a) Ferredoxin (b) Cytochrome b (c) Plastoquinine (d) FADH₂
- 22- Conversion of fructose-1, 6 Dip to 3-phosphoglyceraldehyde catalyzed by:
- (a) Phosphokinase (b) Phosphatase (c) Phosphomutase (d) Aldolase
- 23- Which stage of cellular respiration produces the highest amount of ATP?
- (a) Glycolysis (b) Krebs cycle (c) Electron transport chain (d) Fermentation
- 24- The assimilatory power formed in cyclic photophosphorylation are _____.
- (a) ATP (b) ATP&NADPH₂ (c) NADH₂ (d) FADH₂
- 25- Photosynthesis is _____.
- (a) Catabolic process (b) Amphibolic process (c) Anabolic process (d) None of the above
- 26- What is the main goal of the Calvin Cycle?
- (a) Produce oxygen (b) Synthesize glucose (or G3P) from CO₂ (c) Convert light energy (d) Break down glucose
- 27- Which enzyme initiates carbon fixation?
- (a) ATP Synthase (b) Polymerase (c) PEP Carboxylase (d) Rubisco
- 28- What energy-carrying molecules are used in the Calvin cycle?
- (a) NADP⁺ and ADP (b) FADH₂ and NADH (c) ATP and NADPH (d) FADH₂
- 29- In the "lock and key" model, what represents the "lock" and what is the "key"?
- (a) Enzyme is the key, substrate is the lock (b) Substrate is the key, Product is the lock (c) Product is the key, enzyme is the lock (d) Enzyme is the lock, substrate is the key
- 30- If an enzyme works best at pH 7, what happens to its activity at pH 3?
- (a) It speeds up (b) It works perfectly (c) It slows down or stops (d) It produces more products
- 31- In competitive inhibition, the inhibitor molecule typically resembles which other molecule in structure?
- (a) The enzyme itself (b) The end-product of the reaction (c) The non-competitive inhibitor (d) The enzyme's natural substrate
- 32- Which of the following is not found in chloroplast?
- (a) DNA (b) Ribosomes (c) Carotenoids (d) Bacteriochlorophyll
- 33- Glycolysis occurs only in _____.
- (a) Presence of O₂ (b) absence of O₂ (c) both (a) & (b) (d) None of the above

34- NADP⁺ is reduced to NADPH in the light reactions. What does this mean?

- (a) It loses electrons (c) It gains electrons and a proton (H⁺)
(b) It is broken down (d) It releases energy

35- In mitochondrion, succinate dehydrogenase is located in, _____.

- (a) Matrix (c) Outer membrane
(b) Inner membrane (d) Intermembrane space

Q2: Answer (T) for True sentences or (F) for False sentences: (one mark each)

36- Zinc is crucial in the formation of growth-promoting compounds known as auxin, which help with growth regulation and stem elongation.

37- All colloidal particles in a single, stable system will have charges of the same sign.

38- Imbibition can occur in both living and dead plant tissues (like dry wood).

39- Osmosis is a form of active transport and requires cellular energy (ATP).

40- A plant cell will burst if placed in pure water due to endosmosis.

41- Diffusion and osmosis both aim to equalize concentration across a system.

42- The most widely accepted theory explaining the ascent of sap in tall trees is the root Pressure theory.

43- Ascent of sap is largely an active process that requires metabolic energy (ATP) from the plant's living cells.

44- FADH₂ is released during conversion of succinate to fumarate in TCA cycle

45- The outer membrane of mitochondrion contains many integral proteins which form channels that regulate the movement of molecules and ions from in and out of mitochondrion

46- Carotenoids are isoprenoid compounds contain 10 isoprene units (60 C atoms).

47- Ribozymes, serve to remove pieces of nonfunctional messenger RNA (mRNA).

48- Anaerobic respiration produces more ATP than aerobic respiration.

49- Cofactors are organic compounds composed of vitamins.

50- Phosphatase enzyme catalyzing the removal of phosphate group from the sugar

Best wishes Prof. Dr. Abeer Radi Prof. Dr. Fatma Farghaly



Assiut University
Faculty of Science
Department of Botany & Microbiology



Final Exam for Under- Graduate Students First Semester 2025/2026 Academic Program Academic Program: Microbiology and Chemistry & microbiology Course Title: Fungal physiology	Level : Two Date: 16/1/2026 The allowed time: Two Hours Course Code: 201 BT Program: Course Code: 363 B	
Total Degree: 50 Marks	No. of questions: Four	No. of pages: Two

ANSWER ALL OF THE FOLLOWING QUESTIONS [50 MARKS]

I. Enumerate FIVE ONLY of the following [12 Marks]:-

1. Classification of the fungal tropism "orientation".
2. Classification of the factors affecting the fungal growth.
3. The importance of fungal cell wall.
4. The relationships between fungi and other living organisms.
5. Effects of UV radiation on fungi.
6. Differences between fungal cell walls.

II. Compare between the following [16 Marks].

1. Fungicide and fungistatic.
2. Submerged and surface culture.
3. Lag phase and stationary phase in yeast.
4. Primary and secondary metabolites.
5. Adaptation phase and stationary phase in yeast growth curve.
6. Assist and synthesis for other relationships between fungi and other living organisms.
7. Fungal primary and 2ry metabolism
8. Photoreceptor's and Co-factors.

III. Discuss THREE ONLY of the following [12 Marks].

1. How the thermophilic and psychrophilic fungi adapted with the outer temperature.
2. Why *Diplodia* prefer to grow on starch rather than glucose?
3. Why *Melanospora pampeana* grow well in the presence of *Fusarium moniliforme*?
4. Arrangement of Golgi vesicles during fungal growth (with drawing).



Assiut University
Faculty of Science
Department of Botany & Microbiology



Final Exam for Under- Graduate Students First Semester 2025/2026 Academic Program Academic Program: Microbiology and Chemistry & microbiology Course Title: Fungal physiology	Level : Two Date: 16/1/2026 The allowed time: Two Hours Course Code: 201 BT Program: Course Code: 363 B
Total Degree: 50 Marks	No. of questions: Four
No. of pages: Two	

IV. Answer with True (T) or False (F) [10 Marks]:-

1.	All fungi can live until 0.03% CO ₂ concentration but 0.1% CO ₂ kills the fungi. .	(T)	(F)
2.	Light affects the zonation and metabolic products only.	(T)	(F)
3.	Parophilic fungi live on the sea surface.	(T)	(F)
4.	All fungi live as true alkalophilic.	(T)	(F)
5.	Hialophilic fungi live on Jams or fruits.	(T)	(F)
6.	Yeast live as aerobes.	(T)	(F)
7.	Peptone, glucose, cysteine, yeast extracts, and starch are used as solo carbon source.	(T)	(F)
8.	Manna polymers are found in all fungal cell walls.	(T)	(F)
9.	Antibiotics are produced during antagonism.	(T)	(F)
10.	Any fungal physiological process has four cardinal points	(T)	(F)
11.	In the decline phase the number of new cells = the number of dead cells	(T)	(F)
12.	Melanin and carotenoids act as defender molecules in fungal cell wall.	(T)	(F)
13.	The young fungal cell walls are rich in pigment, lipids, and sterols.	(T)	(F)
14.	Phototropism occurs under the effect of light from one direction on the conidiophores	(T)	(F)
15.	Pigments act as protective molecules against strong light and UV radiation.	(T)	(F)
16.	Chitin is found in higher Oomycetous fungi.	(T)	(F)
17.	Cu is macroelement used in biosynthesis of pigments, enzyme, & it toxic at high levels.	(T)	(F)
18.	Vegetative fungal cells are the most resistant part to stress.	(T)	(F)
19.	Phosphorus is a microelement used in biosynthesize of DNA, RNA, and ATP	(T)	(F)
20.	Azole compounds affect the cell wall biosynthesis.	(T)	(F)

2. Why *Mutisporium purpureum* grow well in the presence of *Paenicia maritima*?

3. Arrangement of Golgi vesicles during fungal growth (with drawing).

Good Luck & Best Wishes

Prof: Eman Mostafa Mohamed



Assiut University
Faculty of Science
Department of Botany & Microbiology



Final Exam for Under- Graduate Students	Level : Two
First Semester	Date: 16/1/2026
2025/2026 Academic Program	The allowed time: Two Hours
Academic Program: Microbiology and Chemistry & microbiology	Course Code: 201 BT Program: Course
Course Title: Fungal physiology	Code: 363 B
Total Degree: 50 Marks	No. of questions: Four
	No. of pages: Two

ANSWER ALL OF THE FOLLOWING QUESTIONS [50 MARKS]

I. Enumerate FIVE ONLY of the following [12 Marks]:-

1. Classification of the fungal tropism "orientation".
2. Classification of the factors affecting the fungal growth.
3. The importance of fungal cell wall.
4. The relationships between fungi and other living organisms.
5. Effects of UV radiation on fungi.
6. Differences between fungal cell walls.

II. Compare between the following [16 Marks].

1. Fungicide and fungistatic.
2. Submerged and surface culture.
3. Lag phase and stationary phase in yeast.
4. Primary and secondary metabolites.
5. Adaptation phase and stationary phase in yeast growth curve.
6. Assist and synthesis for other relationships between fungi and other living organisms.
7. Fungal primary and 2ry metabolism
8. Photoreceptor's and Co-factors.

III. Discuss THREE ONLY of the following [12 Marks].

1. How the thermophilic and psychrophilic fungi adapted with the outer temperature.
2. Why *Diplodia* prefer to grow on starch rather than glucose?
3. Why *Melanospora pampeana* grow well in the presence of *Fusarium moniliforme*?
4. Arrangement of Golgi vesicles during fungal growth (with drawing).



Assiut University
Faculty of Science
Department of Botany & Microbiology



Final Exam for Under- Graduate Students First Semester 2025/2026 Academic Program Academic Program: Microbiology and Chemistry & microbiology Course Title: Fungal physiology	Level : Two Date: 16/1/2026 The allowed time: Two Hours Course Code: 201 BT Program: Course Code: 363 B	
Total Degree: 50 Marks	No. of questions: Four	No. of pages: Two

IV. Answer with True (T) or False (F) [10 Marks]:-

1.	All fungi can live until 0.03% CO ₂ concentration but 0.1% CO ₂ kills the fungi. .	(T)	(F)
2.	Light affects the zonation and metabolic products only.	(T)	(F)
3.	Parophilic fungi live on the sea surface.	(T)	(F)
4.	All fungi live as true alkalophilic.	(T)	(F)
5.	Halophilic fungi live on Jams or fruits.	(T)	(F)
6.	Yeast live as aerobes.	(T)	(F)
7.	Peptone, glucose, cysteine, yeast extracts, and starch are used as solo carbon source.	(T)	(F)
8.	Manna polymers are found in all fungal cell walls.	(T)	(F)
9.	Antibiotics are produced during antagonism.	(T)	(F)
10.	Any fungal physiological process has four cardinal points	(T)	(F)
11.	In the decline phase the number of new cells = the number of dead cells	(T)	(F)
12.	Melanin and carotenoids act as defender molecules in fungal cell wall.	(T)	(F)
13.	The young fungal cell walls are rich in pigment, lipids, and sterols.	(T)	(F)
14.	Phototropism occurs under the effect of light from one direction on the conidiophores	(T)	(F)
15.	Pigments act as protective molecules against strong light and UV radiation.	(T)	(F)
16.	Chitin is found in higher Oomycetous fungi.	(T)	(F)
17.	Cu is macroelement used in biosynthesis of pigments, enzyme, & it toxic at high levels.	(T)	(F)
18.	Vegetative fungal cells are the most resistant part to stress.	(T)	(F)
19.	Phosphorus is a microelement used in biosynthesize of DNA, RNA, and ATP	(T)	(F)
20.	Azole compounds affect the cell wall biosynthesis.	(T)	(F)

Good Luck & Best Wishes



Assiut University
Faculty of Science
Department of Botany & Microbiology



Final Exam for Under- Graduate Students	Level : Two
First Semester	Date: 16/1/2026
2025/2026 Academic Program	The allowed time: Two Hours
Academic Program: Microbiology and Chemistry & microbiology	Course Code: 201 BT Program: Course
Course Title: Fungal physiology	Code: 363 B
Total Degree: 50 Marks	No. of questions: Four
	No. of pages: Two

ANSWER ALL OF THE FOLLOWING QUESTIONS [50 MARKS]

I. Enumerate FIVE ONLY of the following [12 Marks]:-

1. Classification of the fungal tropism "orientation".
2. Classification of the factors affecting the fungal growth.
3. The importance of fungal cell wall.
4. The relationships between fungi and other living organisms.
5. Effects of UV radiation on fungi.
6. Differences between fungal cell walls.

II. Compare between the following [16 Marks].

1. Fungicide and fungistatic.
2. Submerged and surface culture.
3. Lag phase and stationary phase in yeast.
4. Primary and secondary metabolites.
5. Adaptation phase and stationary phase in yeast growth curve.
6. Assist and synthesis for other relationships between fungi and other living organisms.
7. Fungal primary and 2ry metabolism
8. Photoreceptor's and Co-factors.

III. Discus THREE ONLY of the following [12 Marks].

1. How the thermophilic and psychrophilic fungi adapted with the outer temperature.
2. Why *Diplodia* prefer to grow on starch rather than glucose?
3. Why *Melanospora pampeana* grow well in the presence of *Fusarium moniliforme*?
4. Arrangement of Golgi vesicles during fungal growth (with drawing).

Good Luck & Best Wishes

Prof: Eman Mostafa Mohamed



Assiut University
Faculty of Science
Department of Botany & Microbiology



Final Exam for Under- Graduate Students

First Semester

2025/2026 Academic Program

Academic Program: Microbiology and Chemistry & microbiology

Course Title: Fungal physiology

Total Degree: 50 Marks

Level : Two

Date: 16/1/2026

The allowed time: Two Hours

Course Code: 201 BT Program: Course

Code: 363 B

No. of questions: Four

No. of pages: Two

IV. Answer with True (T) or False (F) [10 Marks]:-

1.	All fungi can live until 0.03% CO ₂ concentration but 0.1% CO ₂ kills the fungi. .	(T)	(F)
2.	Light affects the zonation and metabolic products only.	(T)	(F)
3.	Parophilic fungi live on the sea surface.	(T)	(F)
4.	All fungi live as true alkalophilic.	(T)	(F)
5.	Halophilic fungi live on Jams or fruits.	(T)	(F)
6.	Yeast live as aerobes.	(T)	(F)
7.	Peptone, glucose, cysteine, yeast extracts, and starch are used as solo carbon source.	(T)	(F)
8.	Manna polymers are found in all fungal cell walls.	(F)	(F)
9.	Antibiotics are produced during antagonism.	(T)	(F)
10.	Any fungal physiological process has four cardinal points	(T)	(F)
11.	In the decline phase the number of new cells = the number of dead cells	(T)	(F)
12.	Melanin and carotenoids act as defender molecules in fungal cell wall.	(T)	(F)
13.	The young fungal cell walls are rich in pigment, lipids, and sterols.	(T)	(F)
14.	Phototropism occurs under the effect of light from one direction on the conidiophores	(T)	(F)
15.	Pigments act as protective molecules against strong light and UV radiation.	(T)	(F)
16.	Chitin is found in higher Oomycetous fungi.	(T)	(F)
17.	Cu is macroelement used in biosynthesis of pigments, enzyme, & it toxic at high levels.	(T)	(F)
18.	Vegetative fungal cells are the most resistant part to stress.	(T)	(F)
19.	Phosphorus is a microelement used in biosynthesis of DNA, RNA, and ATP	(T)	(F)
20.	Azole compounds affect the cell wall biosynthesis.	(T)	(F)

Good Luck & Best Wishes



Assiut University- Faculty of Science
 First Semester- Final Exam 2025-2026
 Botany and Microbiology Department

Level: (2)
 Date: 10/1/2026
 Time: 2 h



Course Title: Plant Morphology and Anatomy		Code: 221B	
Instructors: Prof. M. Alaa El-Din Elnagdy - Dr. Mona Hasan			
Important:	No. of pages: 3	No. Of questions: 7	Total Mark: 50 degrees

Part One: Plant Anatomy (25 Marks)

Answer the following questions (25 Marks: 5 marks/each)

Q1: Match the items given in column A with the responses given in column B & put your answer in table like the table below :

Column A

Column B

- | | |
|------------------|--|
| 1- Histamine | (A) Applied to all tissues outside the vascular cambium of stem. |
| 2- Amphistomatic | (B) Render the wood to attack by the organisms of decay. |
| 3- Dermatogen | (C) Stomata are found on the upper surface of leaf. |
| 4- Collenchyma | (D) Stomata are found on both surfaces of leaf. |
| 5- Procambium | (E) Living mechanical tissue devoid of lignin. |
| 6- phelloderm | (F) Develops as patches named scale bark. |
| 7- Protoderm | (G) Causes sieve tube losses its function. |
| 8- Rhytidome | (H) Sometimes, named Secondary cortex. |
| 9- Phellogen | (I) Gives rise to the vascular cylinder. |
| 10- Tyloses | (j) Give rise to epidermis. |
| 11- Callose | (k) Develops into piliferous layer. |
| 12- Bark | (L) irritation of the skin. |
| | (M) Periderm. |

1	2	3	4	5	6	7	8	9	10	11	12



79