

فرقة

تجارت



Final Exam. For the 2nd level students (Microbiology and Chem.&Micro.), June 2023.
Subject: Systematic Mycology 1 (261 B) Maximum Allowed Time: 135 Min.

Answer The Following Questions:- (Note: 4 pages should be considered)

Q.1- Give the scientific term or the organism name which is related to TWELF ONLY (12) of the following (Put your answers in the next table):- (12 Marks)

- 1- The fungal species which is characterized by sexual spore's suspensors with circinate filaments.
- 2- The repeated emergence of the secondary or principal zoospore in some fungal spp.
- 3- The obligate parasite fungus inhabiting the body cavity of *Mosquito* larvae
- 4- Fusion between motile male gamete and immotile female one.
- 5- The fungal class producing zoospores with single anterior tinsel flagella.
- 6- The chytrid thallus in which the zoospores are released through a lid remaining attached to one edge of the papilla.
- 7- The aggregation of unicellular, uninucleate naked amoeboid cells which represents the vegetative structure of some slime molds.
- 8- A fungal species which could be used as biocontrol agent for nematode control.
- 9- The causative agent of black wart disease.
- 10- The fungal species which produce two forms of zoospores in their life cycle.
- 11- The order in which the hyphae are constricted at regular intervals and one of the related genera is usually known as the sewage fungus.
- 12- The organism in which the primary zoospores encyst inside club-shaped zoosporangium, and the primary cysts are released by the disintegration of the sporangial wall.
- 13- The fungus which is characterized by the formation of cylindrical merosporangia on a terminal swelling of the sporangiophore and sporangiospores are arranged in a single row within the merosporangia.
- 14- Filamentous fungi which are found in the guts of arthropods as commensals.

(Give your answers in the following table):-

No	Answer	No	Answer
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Q.2- Circle the correct answer (5 points) and write the correct answer if it is missing :- (5 Marks)

1. Which of the following fungi contains rhizoids to fix itself on the nutrient medium?
A. *Rhizopus* sp. B. *Aspergillus* sp. C. *Pythium* sp. D. *Phytophthora* sp. E. None of all.
(.....)
- 2- The fungal thallus attaching several hosts
A- Epibiotic B- Endobiotic C- haplobiotic D- None of all. E. None of all.
(.....)
- 3- Attending antheridial branch originating on the same hypha which bears the Oogonium is called
A. Amphigynous B- Diclinous. C- Exigynous. D- Monoclinous. E- None of all.
(.....)
- 4- Fungi which are characterized by multi-flagellated zoospores are commonly referred as:-
A. *Olpidium*. B- *Synchytrium*. C- Myxomycota. D- Oomycota. E- None of all.
(.....)
- 5- Complete fusion between two morphologically similar gametangia (plasmogamy) in *Rhizopus* is known as:-
A- Gametangial contact. B- Gametangial copulation. C- Isogamy.
D- Anisogamy. E- None of all. (.....)
- 6- The fungal reproductive units which are produced by transformation of pre-existing cells of the thallus is referred as
A- Zoospores. B- Conidia. C- Arthrospores. D- Thallospores. E- None of all.
(.....)

Q.3- Mark with a tick (✓) for the correct or (X) for the wrong statements of THIRTEEN ONLY (13) of the followings (Correct the wrong ones):- (13 Marks)

- 1- Fungal cell is uniquely characterized by presence of lomasomes and smooth endoplasmic reticulum. ().
- 2- *Phytophthora* characterized by forming spherical shape sporangium and vesicle. ().
- 3- Isogamy involves the fusion of a motile male gamete with a non-motile female gamete. ().
- 4- *Coelomomyces* could be used for biological control of Nematode. ().
- 5- In members of zoosporic fungi, Spermatium empties its content into receptive hyphae during the plasmogamy stage. ().
- 6- Asexual structures are used for identification of Oomyceteous fungi into species levels. ().
- 7- Primary plasmodium occurred in root hairs of the host, diploid and gives rise the characteristic resting spores. ().
- 8- The fungal thallus which entirely converted into reproductive structures is referred as eucarpic. ().
- 9- Lichen is a type of the mutualistic (symbiotic) relationships between the fungus and the plant roots. ().
- 10- Oomycetes produce anteriorly unflagellate tinselate planospores. ().
- 11- The female gametes are represented by haploid female nuclei within definite structures known as ascogonia in Zygomyceteous fungi. ().

- 12- Fungi belonging to Oomycetes are characterized by the production of zoospores that have two flagella. ()
- 13- *Plasmopara viticola* is a soil inhabitant genus and causes white rust (white blisters) of cruciferous plants. ().
- 14- Spermatium empties its content into receptive hyphae during the plasmogamy stage of *Pythium*. ()
- 15- Members of family Pythiaceae are the causative agents of downy mildews diseases. ()

Q.4- Give Only One Difference between each of the following (5 points only):- (10 Marks)

1	Mucorales	Entomophthorales
2	Eu-Allomyces	Brachy-allomyces
3	Gonapodiaceae	Monoblepharidaceae
4	True mycelium	Rhizoids
5	<i>Saprolegnia</i>	<i>Achlya</i>
6	Mastigomycotina	Zygomycotina

Q.5-Define Briefly FIVE only of the Following and give the name of an organism or fungal group which is related to each with illustration whenever possible:- (10 Marks)

1- Merosprangia:

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2- Pseudoconidia or Chlamydospores (Define only one)

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3- Polyplantism:

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4- Erotactin hormones:

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5- Polycentric fungal thallus:

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6- Paragynous antheridia:

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7- Exo-operculate zoosporangia:

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The Best Wishes for all. (Prof. Abdel-Raouf Khallil & Dr. Ghada Abdel-Monsef)



The first question:-

(12 marks)

Choose the correct answer, put your answer in the table: - (0.5 mark each)

1. Which one is not a part of a floral whorl:-
a. sepal b. petal c. bract d. carpel
2. Flower that cut into two equal halves along one median longitudinal plane only is called:-
a. actinomorphic b. asymmetrical c. regular d. zygomorphic
3. The arrangement of sepals & petals in bud is known as:-
a. aestivation b. placentation c. duration d. modification
4. If ovary occupies the top most position on receptacle, flower is called:
a. zepigynous b. perigynous c. hypogynous d. Semi-epigynous
5. If the sepals become colored like petals, it is called as:
a. sepaloid petals b. petaloid calyx c. tepals d. perianth
6. non-functional stamens are called as:
a. staminal tube b. fertile stamen c. staminodes d. none of the preceding
7. A condition when filaments & anthers are fused is known as:-
a. syngenesious b. synandrous c. syncarpels d. adelphous
8. When dichasial cyme ends into monochasial cyme, it is called as:-
a. biparous b. cincinnus c. verticillaster d. uniparous
9. In raceme, the flowers arranged in succession called:-
a. basipetal b. acropetal c. centrifugal d. separate
10. Cymose inflorescence with many lateral branches bearing flowers is:-
a. monochasial b. dichasial c. polychasial d. verticillaster
11. Flowers are unisexual and borne on the inner wall of the cup in cymose groups:-
a. syconium b. helicoid c. scorpioid d. verticillaster
12. Fruit with single seed and pericarp fused with testa is called:-
a. caryopsis b. achene c. urticle d. nut
13. Legume type of fruit is usually found in the family:-
a. Compositae b. Apiaceae c. Gramineae d. Fabaceae
14. The edible part of banana is:-
a. meso- & endocarp b. epi- & mesocarp c. epicarp d. pericarp
15. The seedless fruits are called:-
a. endocarpic b. schizocarpic c. parthenocarpic d. noncarpic
16. The fruit that develops from hypanthodium inflorescence is called:-
a. follicle b. Sorosis c. Siliqua d. Syconus
17. The correct scientific name of Mango (المانجو) plant:-
a. *Mangifera sp.* b. *Mangifera indica* c. *Mangifera indica L.* d. all the preceding
18. Among the botanists who proposed an artificial system for plant systematic is:-
a. Theophrastus b. Takhtajan c. Hutchinson d. Cornquist
19. Four o'clock family that characterized by a petaloid tepals is:-
a. Lamiaceae b. Apiaceae c. Fabaceae d. Nyctaginaceae
20. The plant family that characterized by papilionaceous flowers is called:-
a. Fabaceae b. Caesalpiniaceae c. Mimosaceae d. Brassicaceae
21. Which of the following plants is belonging to family Chenopodiaceae:-
a. *Papaver somniferum* b. *Bougainvillea glabra* c. *Spinacia oleracea* d. *Gypsophila elegans*
22. The plant family that characterized by umbel inflorescence and inferior ovary is called:-
a. Apiaceae b. Oleaceae c. Rosaceae d. Scrophulariaceae
23. Which of the following plants is belonging to subfamily Rosoideae:-
a. *Rosa sp.* b. *Prunus armeniaca* c. *Pyrus malus* d. all the preceding
24. Which of the following plants is belonging to family Iridaceae:-
a. *Allium cepa* b. *Ruscus alexandrinus* c. *Iris chrysophylla* d. all the preceding

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The second question:-

(12 marks - 0.5 mark each)

Put (✓) beside the correct answer and put (X) beside the wrong answer:-

Apocarpous condition refers to the presence of many united carpels	()
the calyx and androecium are essential whorl	()
Axile placentation present in unilocular, bicarpellary ovary	()
Isostemonous stamens arranged in two whorls, outer whorl is opposite petals	()
spiral arrangement is a primitive character	()
When the axis of raceme is branched, it is called as panicle.	()
Colored bract called spathe is associated with spadix	()
Corymb with successive lateral branches develops on same side	()
Syconium is a dichasial cyme, which is reduced into two scorpioid cymes.	()
Berry is a fruit which is commonly dry.	()
Pepo fruit is similar to berry, but seeds are embedded in the pulp.	()
Cypsela fruit is usually found in the family Fabaceae.	()
The aggregate fruit develops from a single flower.	()
The credit of Binomial Nomenclature goes to Cornquist	()
Takhtajan proposed a phylogenetical system for plant systematic	()
Papaveraceae has milky sap, numerous stamens and deciduous calyx	()
Pyroideae is characterized by 20 stamens (10+5+5) and pome fruit.	()
Brassicaceae is characterized by cross-like petals	()
The stem of family Cyperaceae is hollow, rounded	()
Scrophulariaceae sometimes has 5-bilabiate petals (upper & lower lip).	()
<i>Gossypium barbadense</i> is belonging to family Malvaceae.	()
<i>Nerium oleander</i> is belonging to family Apocynaceae	()
<i>Phoenix dactylifera</i> is belonging to family Arecaceae	()
<i>Ruscus alexandrinus</i> is an ornamental plant.	()

The third question:- (26 marks)

- (i) What are the meaning of :-
monadelphous – syngenesious – diplostemony – tetradynamous (4 marks)
- (ii) Draw an illustration showing different positions of floral organs (3 marks)
- (iii) Describe the different types of cymose inflorescence (4 marks)
- (iv) Describe the floral characteristics of family Liliaceae with floral diagram.
Enumerate 2 of the important plants. (6 marks)
- (v) Compare the following categories :- (4 marks)
 - a. Rosoideae and Pyroideae in (stamens & carpels).
 - b. Mimosaceae and Fabaceae in (corolla & stamens).
- (vi) Give 1 botanical name and family of oil seed, vegetable, pulse, cereal & medicinal plants. (5 marks)

Best Wishes
Prof. Momen Zareh



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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) 1-5%
- b) 10-20%
- c) 25%
- d) 40-60%
- e) over 90%

12- Which of the following terms would be used to explain how trees can lift water to heights of ten stories or more?

- a) air pressure
- b) adhesion
- c) cohesion
- d) tensile strength
- e) all of the above

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
- e) the proton pump

14- When sugar is mixed with water, equilibrium is reached when

- a) molecules of sugar stop moving.
- b) water and sugar molecules are moving at the same speed
- c) the dissolved sugar molecules are evenly distributed throughout the solution
- d) there are the same number of water molecules as dissolved sugar molecules

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 the same shape.
- d) none of the above

16- Ion can be accumulated against concentration gradient due to?

- (a) Mass flow
- (b) Donnan equilibrium
- (c) Passive uptake
- (d) Active uptake

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^-

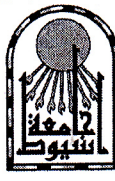
18- The opening of the stomata is affected by all the following except

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

- 19- When water enters the cell, one of the pressures is exerted on cell wall**
 (a) Osmotic pressure (c) Turgor pressure
 (b) Sunaction pressure (d) Root pressure
- 20- In the absence of transpiration water moves into and up xylem because of**
 (a) root pressure (c) high soil mineral concentration
 (b) guttation (d) evaporation
- 21- Which zone is the most important from an irrigation point of view?**
 (a) Soil Zone (c) Capillary Zone
 (b) Saturation Zone (d) Intermediate Zone
- 22- Apparently _____ is the source of energy for keeping stomata open.**
 (a) Photosynthesis (c) ion transfer
 (b) Transpiration (d) hydrogen bond formation
- 23- Guttation is:**
 (a) movement of soluble organic materials through plants.
 (b) movement of water through the apoplast.
 (c) evidence of root pressure.
 (d) negative pressure created by transpiration.
- 24- The pathway in which water moves through cell wall without crossing any membrane**
 (a) Apoplast pathway (c) Transmembrane pathway
 (b) Symplast pathway (d) Vacuolar pathway
- 25- Elements such as calcium, potassium, and phosphorus, needed by the plant in fairly large amounts are called:**
 (a) Fertilizers (c) Macronutrients
 (b) enzyme activators (d) Coenzymes
- 26- The process of imbibition involves**
 (a) Diffusion (c) Absorption
 (b) Capillary action (d) Both (A) and (B)
- 27- What is the role of chlorophyll?**
 (a) To produce sugar
 (b) To trap heat energy
 (c) To trap light energy
 (d) To produce water
- 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- In photosynthesis, what is ATP required for?**
 (a) Carbon fixation
 (b) Splitting water
 (c) Trapping light energy
 (d) Production of light

- 30- In which cell organelles do carbon fixation occur?**
(a) Mitochondria (b) Vacuoles (c) Grana (d) Stroma
- 31- The products of photosynthesis are**
(a) water and carbon dioxide
(b) sugar and water
(c) sugar and oxygen
(d) oxygen and water
- 32- When a photon of light energy reaches a reaction center chlorophyll molecule, what becomes excited?**
(a) a molecule of water vapor
(b) an electron
(c) a carbon dioxide molecule
(d) an atom of oxygen
- 33-The difference between P700 and P680 is that**
(a) the concentration of chlorophyll molecules is greater in P700.
(b) P680 is only used in cyclic electron flow.
(c) P680 is found in algae while P700 is found in land plants.
(d) P700 absorbs light with a wavelength of 700 nm.
- 34-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
- 35- _____ is the final electron acceptor in photosystem I.**
(a) Water (b) Chlorophyll (c) NADP+ (d) Oxygen
- 36- What is the purpose of cyclic electron flow?**
(a) It creates water needed for cellular respiration.
(b) It creates only ATP, needed by the light-independent reactions.
(c) It supplies electrons for photosystem I.
(d) It cleaves water into oxygen and hydrogen ions.
- 37- Which of the following might increase the rate of photosynthesis?**
(a) Decreasing the duration of light
(b) Decreasing the intensity of light
(c) Increasing the amount of oxygen
(d) Increasing the amount of carbon dioxide
- 38- What is the starting source of the carbon in the glucose produced by photosynthesis?**
(a) ATP (b) Cellulose (c) Carbon Dioxide (d) Sugars
- 39- Which of the following can only take place when light is present?**
(a) Glycolysis (c) Light-dependent reactions
(b) Aerobic respiration (d) Light-independent reactions

- 40- Which of the following occurs in the stroma of the chloroplast?**
 (a) light dependent reaction (c) calvin cycle
 (b) electron transport chain (d) photolysis
- 41- The part of the enzyme where the substrate binds is called the:**
 (a) active site (b) catalyst (c) inhibitor (d) large subunit
- 42- How do enzymes speed up chemical reaction?**
 (a) Increasing activation energy
 (b) Increasing deactivation energy
 (c) Decreasing activation energy
 (d) Decreasing deactivation energy
- 43- Each enzyme only has 1 substrate that will fit its active site. What is this called?**
 (a) Reusablility
 (b) Specificity
 (c) Denaturation
 (d) Fragility
- 44- Which of the statements regarding enzymes is false?**
 (a) Enzymes are proteins that function as catalysts.
 (b) Enzymes are specific.
 (c) Enzymes provide activation energy for reactions.
 (d) Enzyme activity can be regulated.
- 45- Which of the following statements is FALSE?**
 (a) glycolysis can occur with or without oxygen
 (b) glycolysis occurs in the mitochondria
 (c) glycolysis is the first step in both aerobic and anaerobic respiration
 (d) glycolysis produces 2 ATP, 2 NADH, and 2 pyruvate
- 46- This process uses NADH and FADH₂ to produce ATP**
 (a) oxidative phosphorylation (c) glycolysis
 (b) fermentation (d) krebs cycle
- 47- This process begins with the production of Acetyl-CoA:**
 (a) chemiosmosis
 (b) glycolysis
 (c) fermentation
 (d) krebs cycle
- 48- When oxygen is not present, fermentation may be used to break the pyruvate into all the following except:**
 (a) ethanol (b) oxygen (c) carbon dioxide (d) lactic acid
- 49- Glycolysis produces a net gain of:**
 (a) no ATP (b) 1ATP (c) 5ATP (d) 2ATP
- 50- The product(s) of photosynthesis in plants are oxygen plus:**
 (a) Glucose (b) Starch (c) Starch and Sucrose (d) Water

	Assiut University – Botany and Microbiology department		
	Final Exam (2023) for 2 nd level students (Biotechnology program) Phycology (204 BT)		
	Time allowed: 2h	Total Marks:50	

Exam in 4 pages

Question #1: Complete the following table:

Q1	15
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Alga	Cell wall	Pigments	Type of thallus	Reserve food	Asexual reproduction
<i>Chlorella</i>					
				Paramylon bodies	
					Synzoospores
<i>Nitzschia</i>					
		Chl. a, d & Phycobiliproteins			
	Fucoidan & alginate				

Question #2: Mention the type of life cycle in the following algae: [Answer 5 only]

Q2		5
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- 1- *Ulva*
- 2- *Cyclotella*
- 3- *Oedogonium*
- 4- *Rhodophyceae*
- 5- *Sargassum*
- 6- *Volvox*

Question #3: Write the scientific term for the following sentences: [Answer 10 only]

Q3		10
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- 1- The center of starch formation in Chlorophyta.
- 2- Algae living on the surface of rocks.
- 3- Spores formed in *Spirogyra* without fusion between gametes.
- 4- Algae which can only produce either male or female gametes from the same cell but never both.
- 5- Siliceous sediments composed mainly of dead skeletal remains of Bacillariophyta.
- 6- A green alga which reproduces asexually by quadriflagellated zoospores.
- 7- Diploid spores of red algae.
- 8- An alga which reproduces asexually by stephanokont zoospores.
- 9- A prokaryotic alga which can be used as food and fodder.
- 10- Unicellular algae which have two semi-cells.
- 11- Eight-celled stage during asexual reproduction in *Volvox*.

Question #4: Identify 10 ONLY of the following terms and mention their function: (Support your answer with drawings and give an algal example for each case)

Q4		20
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- 1) Plurilocular sporangium

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7) Nanospores

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8) Nucule

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9) Daughter colony

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10) Polyhedral cells

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11) Akinete

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With all best wishes,..... Dr./ Mohamed Gomaas

2) *Gongrosira* stage

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3) Hormogonia

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4) Spermatangia

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5) Amylum stars

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6) Auxospores

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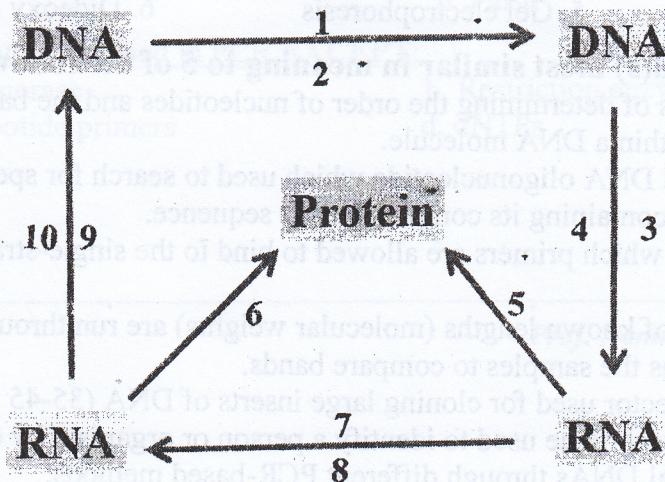
Molecular Biology (212B)	Final exam (8 th June 2023)	Time: 2 hours
Microbiology & Botany students		2 nd level

Answer the following questions (50 Marks)

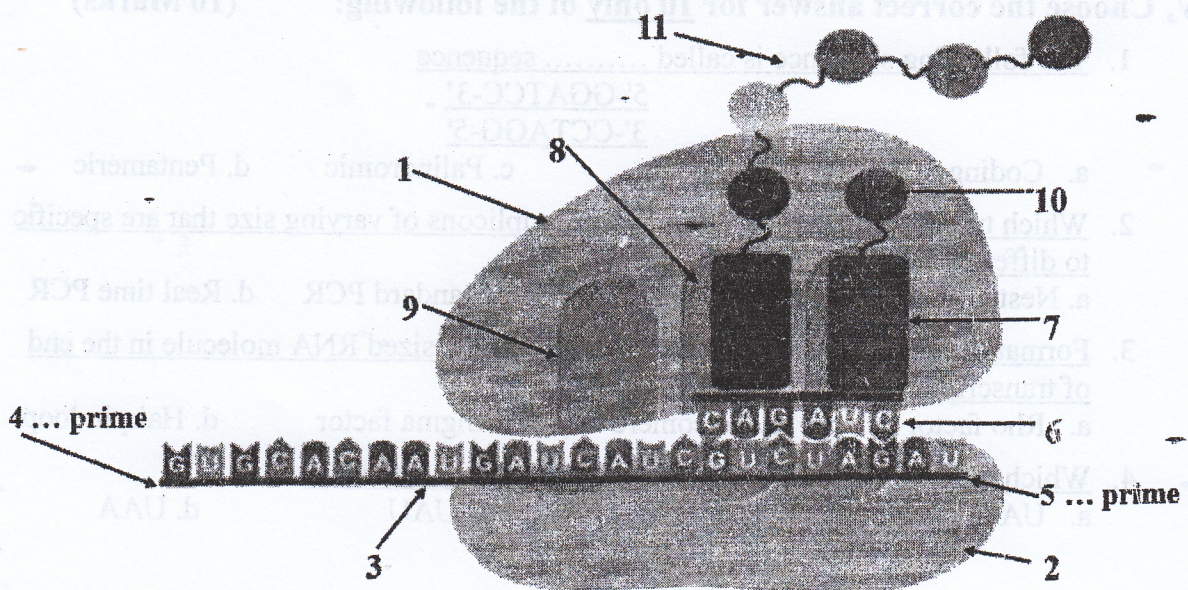
I. Write on 5 only of the following:

(15 Marks)

1. Sequential steps of standard PCR
2. Different techniques used for DNA denaturation.
3. The antiparallel DNA strands have a directionality, discuss this statement.
4. Sequential steps of Eukaryotic transcription
5. From the following diagram, write what numbers are referring to.



*6. From the following diagram, write (in table) what the arrows are referring to.



II. Give one difference for 10 only of the following:

(10 Marks)

1. Southern & Northern Blots.
2. E- & P- sites of ribosome.
3. Polyadenylation & Capping
4. qPCR & RT-PCR.
5. Staggered (Sticky) & Blunt ends (answer in diagram)
6. Z- & B- DNA models.
7. Recombinant & Non- recombinant plasmids.
8. dGTP & dTTP
9. Chromosome structure in Pro- & eukaryotes.
10. Purine & Pyrimidine.
11. 5' UTR & 3' UTR

III. Give the biological function for 5 only of the following:

(10 marks)

1. Reverse transcriptase
2. Helicase
3. Histones
4. TFIIF
5. Gel electrophoresis
6. Dideoxy nucleotides

IV. Write the word(s) most similar in meaning to 5 of the following (5 Marks)

1. The process of determining the order of nucleotides and the bases in a strand of DNA within a DNA molecule.
2. The labeled DNA oligonucleotide which used to search for specific DNA sequences. containing its complementary sequence.
3. The step in which primers are allowed to bind to the single-stranded DNA template.
4. Fragments of known lengths (molecular weights) are run through the gel at the same time as the samples to compare bands.
5. A type of vector used for cloning large inserts of DNA (35-45 kb).
6. A forensic technique used to identify a person or organism by comparing experimental DNAs through different PCR-based methods.

V. Choose the correct answer for 10 only of the following:

(10 Marks)

1. The following sequence is called sequence
5'-GGATCC-3'
3'-CCTAGG-5'
a. Coding b. Non-coding c. Palindromic d. Pentameric
2. Which type of PCR are used to produce amplicons of varying size that are specific to different DNA sequences.
a. Nested PCR b. Multiplex PCR c. Standard PCR d. Real time PCR
3. Formation of G-C-rich bonds within newly synthesized RNA molecule in the end of transcription process in prokaryotes.
a. Rho factor b. Teleomere c. Sigma factor d. Hairpin loop
4. Which of the following is the stop code of protein synthesis.
a. UAG b. AUG c. UAU d. UAA

5. The components of mastermix
 - a. Taq polymerase – primer set – DNA template.
 - b. Taq polymerase – DNA template – dNTPs.
 - c. Taq polymerase – dNTPs – buffer.
 - d. Primer set – dNTPs – buffer.
6. Which of the following organisms has a sigma factor protein.
 - a. Yeast
 - b. *Penicillium*
 - c. *E. coli*
 - d. Plant
7. Adenine and Cytosine form glycosidic linkage with 1' -OH of the pentose sugar at the N1 position.
 - a. True
 - b. False
8. Stabilization of ssDNA is promoted by
 - a. Sigma factor protein
 - b. Topoisomerase
 - c. SSBP
 - d. Primase
9. The method used to get recombinant DNA into cells
 - a. Electroporation
 - b. Electrophoresis
 - c. processing
 - d. Translation
10. Polymerization of dNTP takes place in 3' → 5' direction.
 - a. True
 - b. False
11. All the following are used in PCR EXCEPT:
 - a. Taq polymerase
 - b. Restriction enzymes
 - c. Oligonucleotide primers
 - d. dNTPs

Best wishes

Prof. Nemmat A. Hussein

Faculty of Science Botany & Microbiology Department		كلية العلوم قسم النبات والميكروبيولوجي
General Microbiology (291B) Time: Two hours Total degree: 50 marks	Second semester exam - the academic year 2022/2023 Second Level Exam date: Tuesday, 13/06/2023	

Part I: Virology and Bacteriology

Q.1: Choose the correct option for each of the followings: put your answers in the table below (25 Marks)

- Which among the following, the colony is "fried egg" appearance:
 - Mycoplasmas
 - Spirochetes
 - Actinomycetes
 - Vibrios
- First phase of viral multiplication cycle is:
 - penetration
 - uncoating
 - biosynthesis
 - adsorption or attachment
- Bacterial cell wall is made of:
 - Chitin
 - Cellulose
 - Dextran
 - Peptidoglycan
- What is a cluster of polar flagella called?
 - Peritrichous
 - Monotrichous
 - Amphitrichous
 - Lophotrichous
- This about cell wall of gram-positive bacteria is true:
 - Cell wall comprises of many layers
 - Cell wall is thicker than the Gm - bacteria
 - Cell wall comprises of teichoic acids
 - All of the above
- Extra chromosomal, circular, double stranded, self-replicating DNA in bacteria is:
 - Cosmid
 - Plasmid
 - Capsid
 - Phasmid
- Bacteria can fix nitrogen due to the presence of:
 - Nitrogenase enzyme
 - Nitrate reductase enzyme
 - Catalase
 - Glutamine reductase enzyme
- The capsid it is composed of:
 - Peplomers
 - Capsomers
 - Nucleic acid
 - Envelope
- What is phototaxis?
 - Swimming towards a bacteria
 - Swimming away of a bacteria
 - In the presence of a chemical compound, swimming towards or away of a bacteria
 - None of these
- Alpha-hemolysis caused by:

- a. *Streptococcus pneumoniae* b. *E. coli* c. *Bacillus cereus* d. *Staphylococcus aureus*

11. Properties of the genus *Clostridium*:

- a. Gram-positive rod b. Strictly anaerobic c. Spore-former d. All of these

12. The 70S procaryotic ribosomes consists of:

- a. Two 40S subunits b. a 50S and a 30S subunit
c. a 40S and a 30S subunit d. a 50S and a 20S subunit

13. What is the purpose of bacterial endospores?

- a. Allow the bacterium to make hundreds of "seeds" to spread on the wind.
b. Help the bacterium to differentiate into faster growing stages of bacteria.
c. Allow the bacterium to survive the absence of oxygen.
d. Allow the bacterium to survive extended periods of heat or dryness.

14. When flagella are distributed all around a bacterial cell, the arrangement is called:

- a. polar b. random c. peritrichous d. encapsulated

15. A bacterial cell wall does all of the following except:

- a. gives shape and rigidity to the cell b. is the site of action for some antibiotics
c. is associated with some symptoms of disease d. protects the cell from phagocytosis

16. Flagella and pili are made of:

- a. lipids b. carbohydrates c. nucleic acids d. protein

17. The fact that viruses are obligate intracellular parasites means that they require a _____ for reproduction.

- a. culture dish b. host cell c. phenol red broth d. secondary virus

18. What is Chemotaxis?

- a. Swimming towards a bacteria b. Swimming away of a bacterium
c. In the presence of a chemical compound, swimming towards or away of a bacterium
d. None of these

19. The bacterial cell multiplication is usually by:

- a. Mitosis b. Meiosis c. Conjugation d. Binary-fission

20. The characteristic shape of the bacteria is maintained because of:

- a. Capsule b. Cell wall c. Cell membrane d. Slime layer

21. *Clostridium botulinum* can produce:

- a. Neurotoxic b. Enterotoxin c. Heat resistant toxin d. all of these

22. Which of the following is false about the general characteristics of viruses:

- a. Do not possess cellular organization b. They are lack biosynthetic enzymes
c. They are sensitive to antibiotics d. They are multiply by complex process

23. Lysozyme breaks the glycoside bond between M and G in:

- a. Gram positive bacterial cell wall b. Gram negative bacterial cell wall
c. Gram positive and negative bacterial cell wall d. None of these

24. The bacterial envelope includes all of the following structures except:

- a. capsule b. cell wall c. cell membrane d. endospore

25. Lipopolysaccharide in cell walls is characteristic of?

- a. Algae b. Fungi c. Gram-negative bacteria d. Gram-positive bacteria

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	---

Good luck

Dr./ Amal Danial

Part II: Mycology

Q2: Choose the correct answer:-

(10 Marks)

- (10 Marks)
1. *Allomyces* is belonging to class
A. Plasmodiophoromycetes B. Oomycetes
C. Chytridiomycetes D. Zygomycetes
2. Family *Mucoraceae* includes
A. *Rhizopus* B. *Mucor* C. *Circinella* D. All of them
3. Zygomycetes characterized by:
A. Formation aseptate mycelia.
B. Zygospores represent the product of sexual reproduction.
C. Reproduce asexually by sporangiospores
D. All of them
4. Which of the following is commonly produced by *Penicillium* strain.
A. Blue cheese B. Cheddar cheese C. Swiss cheese D. Mozzarella cheese
5. Which of the following is not characteristic for *Penicillium* species?
A. Filamentous fungi B. Reproduce asexually by conidia
C. Has penicillius type D. Yeast-like fungus
6. Which of the following is the correct family for the fungus *Phytophthora*
A. Pythiaceae B. Oomycetes
C. Albuginaceae D. Peronosporaceae
7. causes soft rot disease of fruits and vegetables.
A. *Penicillium* B. *Aspergillus* C. *Rhizopus* D. *Claviceps*
8. What is *Plasmopara viticola* commonly known as?
A. Downy mildew of grapes B. Powdery mildew of grapes
C. Black rot of grapes D. Anthracnose of grapes
9. is a hard resting body with compact globose or elongate structure formed by the aggregation and adhesion of pseudoparenchymal hyphae.
A. Sclerotium B. Cleistothecia C. Acervulus D. None of them
10. can grow only upon suitable living host tissues and hence, they capable to cause diseases.
A. Obligate parasites B. Obligate saprophytes
C. Facultative saprophytes D. All of them

Q3: Put (✓) in front of the right sentence and (×) in front of the wrong one:

(15 Marks)

1. Some fungi are dimorphic, which have two forms, Yeast – like and hyphae form () structures.
2. The cell membrane of fungi has a unique sterol and ergosterol. ()
3. Starch is the stored food in fungal cells. ()
4. Primary zoospores in Oomycetes have reniform or kidney-shaped structure. ()
5. Mycorrhiza is a symbiotic relationship between fungus and plant roots. ()
6. *Plasmopara viticola* belongs to the class Mastigomycotina. ()
7. *Saprolegnia parasitica* causes Saprolegniasis disease in fish. ()
8. Mycetoma in a human foot caused by a fungus *Madurella mycetomatis*. ()
9. Zygomycetes are characterized by the formation of aseptate mycelia. ()
10. Fungi are prokaryotic organisms. ()
11. True fungi are usually in a filamentous or multicellular form. ()
12. Mastigomycotina include the group of fungi that can produce immotile reproductive units during their life cycle. ()
13. Identification of genera of Saprolegniales based on Shape of zoosporangium only. ()
14. Oomycetes are group of fungi that produce biflagellated reproductive units. ()
15. The cell wall in the majority of fungi is composed of pectin. ()

Good Luck

Dr. Aml Danial

Dr. Elhagag Hassan



Assiut university

Botany and Microbiology Department
Plant Taxonomy of Flowering Plant
Second level
Time: Two hours



Faculty of science
Biotechnology
(210 ن ت)
2nd Term

Second term examination
3-6-2023

First question: choice the correct answer (1 mark for each question)

1- Apocarpous condition refers to presence of:-

- | | | | |
|--------------|---------------------|-----------------------|--------------------------|
| a. No carpel | b. Many free carpel | c. Many united carpel | d. Non-functional carpel |
|--------------|---------------------|-----------------------|--------------------------|

2- A condition when filaments are fused but anthers are free is known as:-

- | | | | |
|--------------|-----------------|----------------|---------------|
| a. Adelphous | b. monadelphous | c. monothecous | d. monandrous |
|--------------|-----------------|----------------|---------------|

3- Six stamens (4 inner + 2 outer short):-

- | | | | |
|------------------|-----------------|---------------|--------------------|
| a. tetradynamous | b. hexadynamous | c. didynamous | d. tetra-idynamous |
|------------------|-----------------|---------------|--------------------|

4- In raceme, the flowers arranged in succession called:-

- | | | | |
|-----------------|--------------|---------------|--------------|
| a. lateralpetal | b. basipetal | c. longipetal | d. Acropetal |
|-----------------|--------------|---------------|--------------|

5- Fruit with a single seed and pericarp fused with testa is called:-

- | | | | |
|-----------|--------------|--------|------------|
| a. achene | b. caryopsis | c. nut | d. cypsela |
|-----------|--------------|--------|------------|

6- Flowers are unisexual and borne on the inner wall of the cup in cymose group:-

- | | | | |
|-------------|-------------|--------------|-------------------|
| a. syconium | b. helicoid | c. scorpioid | d. verticillaster |
|-------------|-------------|--------------|-------------------|

7- Leguminous family with petals differentiated into standard, wings and keel is:-

- | | | | |
|---------------|-------------|-------------|-----------------|
| a. Solanaceae | b. Oleaceae | c. Fabaceae | d. Brassicaceae |
|---------------|-------------|-------------|-----------------|

8- Flower is surrounded by two bracts called lemma and palea in family:-

- | | | | |
|---------------|-------------|-------------|------------|
| a. Solanaceae | b. Oleaceae | c. Fabaceae | d. Poaceae |
|---------------|-------------|-------------|------------|

9- Which of the following plants is belonging to family Malvaceae:-

- | | | | |
|----------------------------|-------------------------------|--------------------------------|----------------------|
| a. <i>malva parviflora</i> | b. <i>Hibiscus esculentus</i> | c. <i>Gossypium barbadense</i> | d. all the preceding |
|----------------------------|-------------------------------|--------------------------------|----------------------|

10- Subfamily that characterized by numerous free carpels and numerous stamens:-

- | | | | |
|---------------|--------------|--------------|---------------|
| a. Fabioideae | b. Pyroideae | c. Rosoideae | d. Prunoideae |
|---------------|--------------|--------------|---------------|

11- Which of the flowing plants is belonging to family Nyctaginaceae:-

- | | | | |
|----------------------------|---------------------------------|--------------------------------|----------------------|
| a. <i>malva parviflora</i> | b. <i>Bougainvilleae glabra</i> | c. <i>Gossypium barbadense</i> | d. all the preceding |
|----------------------------|---------------------------------|--------------------------------|----------------------|

12- Which of the following plant is vegetable:-

- | | | | |
|-----------------------|------------------------|-------------------------|----------------------|
| a. <i>Allium cepa</i> | b. <i>Eruca sativa</i> | c. <i>Daucus carota</i> | d. all the preceding |
|-----------------------|------------------------|-------------------------|----------------------|

13- The credit of binomial nomenclature goes to:-

- | | | | |
|-----------------|-------------|--------------|--------------|
| a. Theophrastus | b. Linnaeus | c. Cornquist | d. Takhatian |
|-----------------|-------------|--------------|--------------|

14- Which of the following families is characreizd by a sepaloid tepals:-

- | | | | |
|---------------|-------------------|-------------|--------------|
| a. Solanaceae | b. Chenopodiaceae | c. Fabaceae | d. Lamiaceae |
|---------------|-------------------|-------------|--------------|

15- Carcerulus if type of fruit that is characterized to family:

- | | | | |
|---------------|-------------------|-------------|--------------|
| a. Solanaceae | b. Chenopodiaceae | c. Fabaceae | d. Malvaceae |
|---------------|-------------------|-------------|--------------|

The second question: writ short notes of the following question (4 marks for each question)

- 1- Describe the floral characteristics of family Liliaceae with drawing the floral diagram, and enumerate two plants.
- 2- Describe the different types of cymose inflorescence
- 3- writ short notes on binomial nomenclature
- 4- Describe the floral characteristics of Papaveraceae with drawing the floral diagram, and enumerate two plants.
- 5- Define the epigynous flower, persistent calyx, monadelphous and apocarpous

The third question: copare between the following categories:

- 1- Compare between the corymb and umbel inflorescence (3 marks)
- 2- Cyperaceae and Poaceae in (stem and fruit) (3 marks)
- 3- Compare between legume and lomentum with given example (3 marks)

The fourth question:

- Give one botanical name and family of oil seed, vegetables, pulse, cereal and medicinal plants (6 marks)

GOOD LUCK

Faculty of Science Botany & Microbiology Department		كلية العلوم قسم النبات والميكروبيولوجي
Virology (202BT) Time: Two hours Total degree: 50 marks	Second semester exam - the academic year 2022/2023 Second Level Exam date: Tuesday, 30/05/2023	

Q1: Write short notes about Five only of the following: (20 marks)

1. Special characteristics of plant virus infections.
2. Nomenclature of plant viruses.
3. Transmission of plant viruses with and without vectors.
4. Structure of coronaviruses.
5. Baltimore classification.
6. Gastrointestinal viral diseases.

Q2: Compare between each of the following: (answer Five only) (20 marks)

1. Viral capsid and viral envelope
3. Acquisition feeding period and Inoculation feeding period
4. Circulative transmission and non-circulative transmission
5. Positive sense RNA and negative sense RNA
6. Haemagglutinin and Neuraminidase
7. Family Hepadnaviridae and family Poxviridae

Q3: Choose the correct answer for each of the followings: - (10 Marks)

1. Who is the father of Virology?

- a. Martinus Beijerinck b. Dmitri Ivanovsky c. John Ellerman d. Frederick Twort

2. Viruses outside their host cells survive as

- a. virions b. algae c. protozoa d. bacteria

- 3. Which of the following is the most common capsid shape of the virus?**
- a. Cone b. Icosahedron c. Cube d. Rod
- 4. A chemical component that is found in all viruses is:**
- a. Protein b. Lipid c. DNA d. RNA
- 5. Viral disease has no cure because:**
- a. Viruses have no cell wall b. presence of capsid c. viruses possesses no cytoplasm
d. viruses can multiply repeatedly within the host cell
- 6. The bacteriophage contains an enzyme known as**
- a. Dehydrogenase b. urease c. protease d. lysozyme
- 7. Which of the following is the genome of the virus?**
- a. DNA b. RNA c. DNA or RNA d. DNA and RNA
- 8. Which of the following statements are true about the capsomeres?**
- a. It is an individual unit of the capsid b. It is a viral protein for replication
c. It is a unit of nucleic acid in viruses d. All of the above
- 9. The viral envelope is made up of**
- a. Proteins b. Glycoproteins c. Lipids and Proteins d. All of the above
- 10. The spike-like projections on the viral capsid are known as**
- a. Viriod b. Proteomes c. Peplomers d. capsomeres

Good luck

Dr. Amal Danial

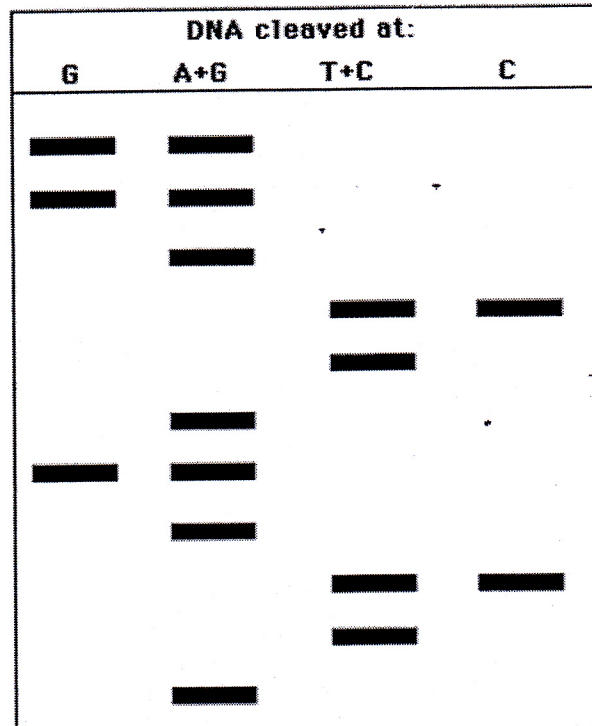


Answer the following questions (50 Marks)

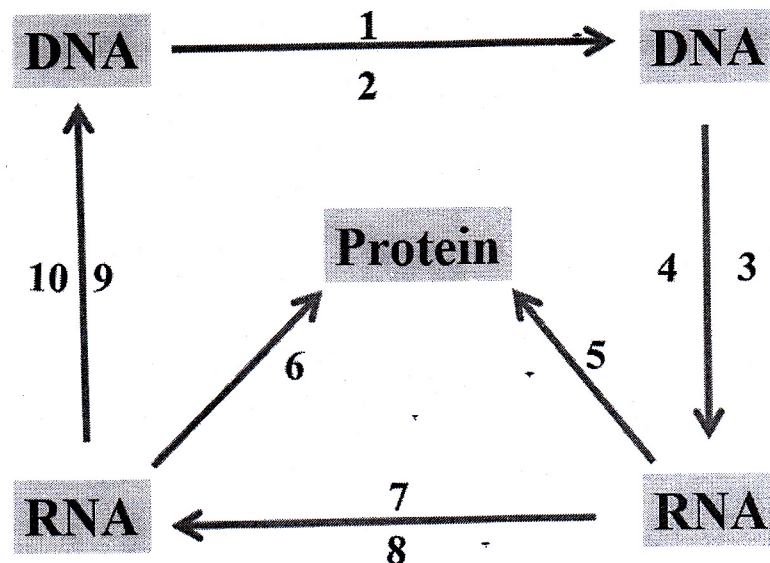
I. Write on 7 only of the following:

(21 Marks)

1. Main features of a vector used in gene cloning.
2. Sequential steps of replication
3. Various bonds that included in DNA structure.
4. The advantages and disadvantages of GM
5. Sequential steps of southern blot
6. How can you use DNA fingerprinting technique for proofing paternity
7. From the following diagram, write the name of the technique and interpret the illustrated results.



8. From the following diagram, write what numbers are referring to.



II. Give the difference(s) between 5 only of the following:

(10 Marks)

1. Temperatures of denaturation, annealing & extension.
2. Ribosome structure in Pro- & eukaryotes.
3. 3' prime & 5' prime.
4. Leading & lagging strands.
5. Chromosome structure in Pro- & eukaryotes.
6. Sense & antisense strands.

III. Give the biological function for 4 only of the following:

(4 marks)

1. Thermal cycler
2. Rho factor
3. Histones
4. Restriction enzyme
5. Polyadenylation

IV. Write True or False for 5 of the following and correct the false statements.

(5 Marks)

1. In Eukaryotic gene, the untranslated region occurs only downstream.
2. Generally, translation takes place directly after transcription.
3. 5 capping occurs only in Eukaryotes.
4. Abortive initiation is a step before elongation.
5. At each origin of replication, one replication fork is formed.
6. Transcription bubbles are created only in Prokaryotes.

V. Choose the correct answer for 10 only of the following:

(10 Marks)

1. Which of the following is the stop codon of protein synthesis.

a. UUA b. AUG c. UAU d. UAA

2. The components of mastermix

- a. Taq polymerase – primer set – DNA template.
- b. Taq polymerase – DNA template – dNTPs.
- c. Taq polymerase – dNTPs – buffer.
- d. Primer set – dNTPs – buffer.

3. Which of the following result is provided by Northern Blot analysis:
a. DNA molecules b. Protein molecules c. Nucleotides d. RNA molecules
4. Which of the following is the first step of gene expression.
a. Translation b. Transcription c. PCR d. Replication
5. A type of RNA participates in protein synthesis by reading the message and carrying the appropriate amino acid.
a. tRNA b. mRNA c. rRNA d. none of the above
6. Which of the following statements describe the organism with recombinant DNA:
a. White bacterial colonies susceptible to antibiotic
b. Blue bacterial colonies susceptible to antibiotic
c. White bacterial colonies resistant to antibiotic
d. Blue bacterial colonies resistant to antibiotic
7. One of the following is correct about the separation of macromolecules using gel electrophoresis.
a. The largest molecules are in the front and the smallest one is in the back.
b. The slowest molecules are the negatively charged molecules
c. The separation is based mainly on the colour.
d. Molecules of the smallest molecular weight are located near the end.
8. Which of the following types of RNAs translated into protein
a. tRNA b. mRNA c. rRNA d. all of the above
9. Synthesizing a molecule of DNA from RNA is proceeded by
a. DNA polymerase b. RNA polymerase
c. Reverse transcriptase d. Ligase
10. The technique used in synthesis of multiple copies of DNA in a test tube.
a. Gene cloning b. PCR c. transcription d. DNA sequencing
11. the replicated DNA is consisted of one strand coming from the original helix and one newly synthesized, this is called
a. The replication process b. The transcription process.
c. Semiconservative replication d. Bidirectional replication

Best wishes

Prof. Nemmat A. Hussein



Course name: **Hormones and Enzymes**
Final Exam., June 2023

Course number: **252 B**
(3 pages)

الإسم:	رقم الجلوس:
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A: Enzymes (25 Marks)

I- Choose the correct answer (10 Marks, one point free):

1.	Enzymes a) do not require activation energy b) do not change requirement of activation energy c) increase requirement of activation energy d) lowers requirement of activation energy
2.	The term apoenzyme is applicable to protein Simple enzyme b) Protein part of enzyme Organic coenzyme d) Inorganic cofactor of the enzyme
3.	All the following equations are correct except: (a) $E + S \leftrightarrow ES \text{ complex} \rightarrow E + P$ (b) $E + I \leftrightarrow EI \text{ complex} \rightarrow E + I$ (c) $E + I \leftrightarrow EI \text{ complex} \rightarrow XXX$ (d) $E + S + I \leftrightarrow ES + EI \rightarrow E + P + EI$
4.	Enzymes are classified into a) 2 b) 4 c) 6 d) 8 major classes
5.	Enzymes resemble catalysts; they both (a) enhance reaction rates (b) contain active sites (c) tolerate extreme temperatures (d) a and c.
6.	A chemical compound that inhibits an enzyme-catalyzed reaction by binding to its active site is called (a) inhibitor (b) allostric inhibitor (c) competitive inhibitor (d) none of the above.

7.	Enzymes that catalyze intramolecule rearrangement of atoms within a single molecule are: (a) Transferases (b) Isomerases (c) Hydrolases (d) a and b.
8.	Succinate dehydrogenase means (a) its substrate is succinic acid (b) it is an enzyme because of the suffix "ase" (c) the enzyme class is Oxidoreductases (EC.1) and the nature of the reaction is the transfer of hydrogen via "Hydrogenase" not "Oxidase" activity (d) all of the above
9.	Ligases (a) produce ATP (b) consume ATP (c) An example is synthases (d) none of the above.
10.	Enzyme kinetics are calculated by reciprocal of a) S with R b) reciprocal of S with reciprocal of R c) S with reciprocal of R d) any of the above S is substrate concentration and R is the rate of enzyme reaction
11.	Denaturation of enzymes occurs (a) at un-optimum pHs (b) at freezing temperatures (c) as disruption of hydrogen, electrostatic and hydrophobic bonds (d) a or c.

II. Put a (✓) in front of the correct sentence or (X) in front of the wrong one; correct the underlined word(s) only, if wrong (5 Marks, one point free):

1.	Lower Km (Michaelis-Menten constant) means <u>higher</u> affinity of an enzyme to its substrate,	
2.	Attainment of the enzyme-catalyzed reaction its steady state means <u>pre-saturation</u> of its active sites.	
3.	Every enzyme code consists of the letters " <u>AC</u> " (Enzyme Commission) followed by four numbers separated by periods.	
4.	<u>Lyases</u> catalyze non-hydrolytic addition or removal of groups from substrates.	
5.	Metabolic regulation takes place by <u>coarse and fine adjustment</u>	
6.	Specificity of the enzyme to its substrate is <u>absolute only</u>	

VI. Write down the scientific term best expresses the following information (10 marks, one point free):

1.	A chemical that inhibits an enzyme-catalyzed reaction	
2.	A site, other than the active site, at which a chemical compound binds and enhances or inhibits the feed forward or feedback of an enzyme-catalyzed reaction	
3.	changes of a protein molecule can occur in response to interactions with other molecules such as substrates, substrate analogs or coenzymes.	
4.	Maintaining the steady state of a metabolic process by its internal factors is lled.....	
5.	Moles of a substrate converted to product per unit time (sec or min) per mg of protein	
6.	The type of inhibition that slows the production line when products begin to build up and is an important way to maintain homeostasis in a cell	
7.	The enzyme class "EC.3", which uses water as part of all its catalyzed reactions is called	
8.	The Lineweaver–Burk plot can be used to distinguish the different types of	
9.	The energy in Kcal/mole required to convert one mole of substrate is known as.....	
10.	Moles of substrate converted to product per second per mole of the active site of the enzyme	
11.	A biological catalyst works only at physiological conditions	

Best wishes, Prof. Dr. Refat Abdel-Basset

B:-Hormones

1:-Choose the correct answer of the following:-

(5 marks)

1. is hormone induce growth inhibition and it is derived from amino acid methionine and accelerates the ripening of edible fruits.
a) Ethylene b) ABA c) GA d) Auxin
2. In the second model of phototropism, light inhibits.....biosynthesis on the light side of the plant, thus decreasing the concentration of hormone relative to the unaffected side.
a) Ethylene b) ABA c) GA d) Auxin
3. The precursor for synthesis ofis mevalonic acid.
a) Ethylene b) ABA c) GA d) Auxin
4. The main route of degradation of.....in plants, is oxidized to phaseic acid.
a) Ethylene b) ABA c) GA d) Auxin
5. The Cholodny–Went hypothesis,will move towards the shaded side and promote elongation of the cells on that side.
a) Ethylene b) ABA c) GA d) Auxin

2:- Put correct (✓) or false (✗) of the following :-

(20 mark)

1. Cytokinins are compounds with a structure resembling kinetin which promote cell division. ()
2. Polyamines are the key compounds retardation growth hormones. ()
3. Free base forms of GA are most hormonally active as zeatin and dihydrozeatin. ()
4. Ethylene is essential for tissue culture because besides cell division they are also involved in morphogenesis. ()
5. The most common form of naturally occurring cytokinin in plants today is called zeatin which was isolated from corn (*Zea mays*). ()
6. Example of natural auxines is IAA, while 2,4-D(NAA) is example of synthetic auxines. ()
7. The main structure of auxine is tryptamine. ()
8. The movement of auxin is basipetal movement. ()
9. Auxins activate proton pumps, increasing the pH in the cells on the dark side of the plant. ()

10. Gibberellins enable plants to overcome the phenotypic expression of dwarfism in certain plants via internode elongation. ()
11. Long-day plants (LDP) and cold-requiring plants are responsive to exogenous GAs when kept under non-inductive condition, while short-day plants (SDP) and day-neutral plants (DNP) are not. ()
12. Auxin plays a role in the abscission of leaves and fruits. ()
13. Paracrine hormones transported to the site of action from their site of synthesis. ()
14. Gravitropism, high concentrations of auxin move towards the cells on the bottom side of the root. This suppresses growth on this side. ()
15. Exogenous applications of ethylene accelerate leaf senescence, and treatment with exogenous cytokinins delays leaf senescence. ()
16. ABA is synthesized in all types of cells that contain chloroplasts or other plastids. ()
17. Free ABA can also be inactivated in plants by covalent conjugation with some simple sugar molecule such as glucose to form ABA-p-D-glucosyl ester. ()
18. Jasmonic acid is most common other growth-inhibiting hormones. ()
19. Photosensitive receptors in plants include phytochromes that sense blue light and cryptochromes that sense red light. ()
20. Unlike auxin and GAs, cytokinins also cause cell elongation. ()
21. Postulated hormones produced spontaneously in the plant body, for example florigen. ()

The end

Good luck



Biological water pollution (292B)	Final exam (2022-2023)	Time: 2 hours
Microbiology & Botany students (2 nd level)		

Answer the following questions (exam in 6 pages)

Q1: Choose the correct answers for the following questions: (25 marks)

1. Drinking the biological polluted water causes
(a) fever (b) diarrhea (c) vomiting (d) All of the previous
2. In fresh water ecosystem, the benthic zone contains
(a) methanogenic bacteria (b) photosynthetic algae (c) fungi (d) b&c
3. The rapid growth of cause the red tide which turn the water color into red color and cause the fish death.
a) photosynthetic bacteria (b) dinoflagellates algae (c) pathogenic yeast (d) a&b
4. Artificial water eutrophication causes excess in the Growth.
a) fish (b) algae (c) protozoa (d) a&b
5. Cholera disease that caused by polluted water is related to bacteria.
(a) *Salmonella* (b) *Vibrio* (c) *Phycomyces* (d) *Pilobolus*
6. Gastro-disease of polluted water (botulism) caused by bacteria.
(a) *Mycobacterium* (b) *Salmonella* (c) *Clostridium* (d) Not of previous
7. The common indicator of fecal water contamination is
(a) *Salmonella* (b) *E.coli* (c) *Clostridium* (d) Not of previous

8. Viruses that most often implicate in water born disease include
- (a) noroviruses (b) hepatitis A (c) rotavirus (d) All of previous
9. Enteric viruses have a presumed low infectious dose.....
- (a) $10-10^3$ (b) $10-10^5$ (c) $10-10^9$ (d) None of the previous
10. Norovirus (Caliciviridae) are a group of viruses that cause
- (a) respiratory infection (b) skin infection (c) gastroenteritis (d) a&b
11. commonly infect the infants and young children by fecal-oral transmission.
- (a) Rotavirus (b) Enterovirus (c) Norovirus (d) All of the previous
12. A diarrheal disease that caused by microscopic parasites related to genus
- (a) *Entamoeba* (b) *Giardia* (c) a&b (d) *Cryptosporidium*
13. disease is expressed most often as ulcerative and inflammatory lesions of the colon resulting in a complete spectrum of colonic signs and symptoms.
- (a) Amebiasis (b) Hepatitis B (c) Giardiasis (d) Cryptosporidiosis
14. Diarrheal illness caused by a one-celled microscopic parasite called
- (a) Amebiasis (b) Hepatitis C (c) Giardiasis (d) Cryptosporidiosis
15. *Cylindrocarpus* sp. that causes keratitis could found in
- (a) ground water (b) tap water (c) surface water (d) all of the previous
16. *Exophiala* sp. that related to fungal ascomycota and cause cutaneous infection could found in
- (a) ground water (b) tap water (c) surface water (d) all of the previous

17. *Ochromoicis* sp. that related to fungal ascomycota could found in

- (a) ground water (b) tap water (c) surface water (d) all of the previous

18. *Trichophyton* sp. that cause different types of tinea could found in

- (a) swimming pools (b) tap water (c) surface water (d) all of the previous

19. is a large body of water formed by the accumulation of rainwater, river water, or seawater in a naturally presence.

- (a) Pond (b) Lake (c) Stream (d) a&c

20. Salt water contains about sodium chloride.

- (a) 1% (b) 3.5% (c) 2% (d) a&c

21. Brackish water has salinity between sodium chloride.

- (a) 1 - 2.5% (b) 2.5- 3.5% (c) 3.5-5.5% (d) b&c

22. Fresh water ecosystem representsof the earth surface.

- (a) 0.8% (b) 71% (c) 50% (d) 35%

23. Halophilic bacteria and fresh water bacteria like *Pseudomonas* and *Vibrio* are found in the water

- (a) Benthic (b) Surface (c) littoral (d) a&c

24. Holoplankton spends their entire lifecycle as plankton include

- (a) diatoms (b) bacteria (c) Jellyfish (d) all of the previous

25. is a complex mixture of microbes found attached to the submerged surfaces in water.

- (a) Periphyton (b) Benthos (c) Plankton (d) All of the previous

Q2: Choose true or false for the following questions: (25 marks)

26. Fresh water has salinity between 1 and 2.5% sodium chloride.

- (a) True (b) False

27. In the liquid state of water, the molecules arrange themselves in a particular highly organized rigid geometric pattern which decrease its density.

- (a) True (b) False

28. Marine ecosystem represents 71% of the earth surface.

- (a) True (b) False

29. Lentic term represents the fast moving of water.

- (a) True (b) False

30. Femtoplankton size less than 0.2 μm , while phytoplankton 0.2-2 μm

- (a) True (b) False

31. Non-point source pollution causes from many places that spread over a large area, such as when snow melt runoff picks up pollutants along its path.

- (a) True (b) False

32. Eutrophication is the decreasing of nutrients in the water caused by runoff from farms, lawns and gardens

- (a) True (b) False

33. Sewage sludge is the liquid material that remains after water treatment.

- (a) True (b) False

34. Coliforms is refer to various bacterial genera related to Enterobacteriaceae group.

- (a) True (b) False

35. Fresh water shouldn't contains more than 5000 fecal coliforms/100ml.

- (a) True (b) False

36. Ideal water turbidity value is 10 NTU.

(a) True (b) False

37. Bacteria could convert polluted water ammonia to nitrate.

(a) True (b) False

38. Bioindicators referred to living organisms in water that are tolerant to pollution.

(a) True (b) False

39. Pathogenic microorganisms are native in aquatic system and not need animal host for growth and reproduction.

(a) True (b) False

40. Most water borne pathogen introduced to water via faecal contamination.

(a) True (b) False

41. When virus infect the cell, it will produce viral particles instead of its usual products.

(a) True (b) False

42. Enteric viruses are host-specific and are not capable of replicating in the environment outside of its host.

(a) True (b) False

43. The cause of infectious or epidemic hepatitis transmitted by the fecal-oral route.

(a) True (b) False

44. Boiling (Rolling boil for 1 minute) has no effectiveness in killing *Cryptosporidium*.

(a) True (b) False

45. Disinfection with iodine or chlorine is not effective in killing *Giardia*.

(a) True (b) False

46. Combination of filtration and disinfection has a **high effectiveness** in removing and killing bacteria.

(a) True (b) False

47. Filtration is effective method for removing viruses from polluted water.

(a) True (b) False

48. Boiling polluted water can be used as a pathogen reduction method that could kill all pathogens.

(a) True (b) False

49. Filters that contain a chemical disinfectant matrix will be effective against some viruses.

(a) True (b) False

50. Ultraviolet light can't be use as a pathogen reduction way in polluted water

(a) True (b) False

With my best wishes

Dr. Ghada Abd-Elmonsef Mahmoud