



Answer the following questions (50 Marks)

I. Give a short account on 5 only of the following: (10 Marks)

1. Dental carries in children
2. Bladder infection
3. Symptoms of AIDS
4. Antifungal agents
5. Describe the risk factors associated with Aspergillosis?
6. Ahmed went to the hospital after not feeling well and fatigued, his body temperature was 39°C, with high blood pressure and complains of nausea and a headache. Distinguish between the signs and symptoms of disease in Brian's case.

II. Give the reason(s) for the following: (10 Marks)

1. Not all microorganisms entering the body could cause infection.
2. Penicillin could not impair the human body.
3. Health-care workers wear gloves when handling blood.
4. Testing of cerebrospinal fluid (CSF) is required in patients suffering from Meningitis.
5. *Helicobacter pylori* represents about 50% of stomach normal microbiota.

III. Compare between 5 only of the following: (10 Marks)

1. Hemolysins and leukocidins
2. HAV & HBV
3. Indigenous & Exogenous infections
4. Covid-19 and Influenza diseases
5. Droplet and airborne transmission
6. Tinea capitis & Tinea pedis

IV. Give one example for the following: (10 Marks)

1. Skin normal mycobiota
2. Geophilic fungal pathogen
3. Normal microbiota in the upper respiratory tract
4. A fungal disease transferred via the parenteral route
5. Viral disease infecting skin
6. Dermatophytic fungus
7. The causal agent of gastritis.
8. An enzyme dissolving clots.
9. Protozoan disease
10. A portal of exit of gastrointestinal tract pathogen.

"بقية الأسئلة في الصفحة القادمة"

IV. Choose the correct answer for 10 only of the following: (10 Marks)

1. Which of the following is a set of bacterial diseases?
a. Malaria, poliomyelitis, tuberculosis b. Tinea, HIV, pneumonia
c. Pneumonia, meningitis, tuberculosis d. Gonorrhea, shingles, cannibalism
2. A mosquito bites a person who subsequently develops a fever and abdominal rash. What type of transmission would this be?
a. Biological vector b. Direct contact c. Fomite d. Droplets
3. Which of the following is the main symptom of tetanus disease?
a. Spastic paralysis b. Diarrhea c. Red rash d. Flaccid paralysis
4. One of the following is the part of the body, responsible for regulating body temperature.
a. Normal microbiota b. Fatty acids c. Skin d. Hypothalamus
5. Which of the following choices lists the steps of pathogenesis in the correct order?
a. Invasion, infection, adhesion, exposure
b. Adhesion, exposure, infection, invasion
c. Exposure, adhesion, invasion, infection
d. Disease, infection, exposure, invasion
6. *Haemophilus influenzae* causes
a. Cystitis b. Typical Pneumonia
c. Typical Influenzae d. Atypical Pneumonia
7. Which of the following applies to hyaluronidase?
a. It acts as a spreading factor, produced by gangrene causing clostridia
b. It promotes blood clotting.
c. It is an example of an adhesin.
d. It is produced by immune cells to target pathogens.
8. Pain, burning, red rash, loss of hearing, dizziness, loss of taste are symptoms of
a. Shingles b. Mycetoma c. HAV d. Food poisoning
9. Which of the following would be a sign of an infection?
a. Muscle aches b. Headache c. Fever d. Nausea
10. Fungal infection of nails is called
a. Athlete's foot b. Pilonephritis c. Tinea pedis d. Onychomycosis
11. Which of the following sites is not free from normal microbiota?
a. Conjunctiva b. Urine c. Bronchi d. All of the above
12. Microorganisms that cause disease only when conditions are favorable because of weakened immunity in an individual.
a. True pathogen b. Contagious c. Exogenous d. Opportunistic
13. Which of the following is an example of a noncommunicable infectious disease?
a. Infection with a respiratory virus b. Covid-19
c. food poisoning due to bacterial toxin d. Malaria
14. The production of antibody against a certain pathogen is
a. Natural defense b. innate immunity c. Host response d. Physical barrier

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15. Which of the following is the causal agent of AIDS?
 a. HAV b. HIV c. HBV d. HCV
16. One of the following is a chemical barrier against microbial infection.
 a. Lysozyme b. Skin c. Normal microbiota d. Phagocytosis
17. Which of the following is a major virulence factor for the fungal pathogen *Cryptococcus*?
 a. Flagella b. Capsule c. Fimbriae d. Collagenase
18. The infection site of kuru disease is
 a. Liver b. Skin c. Lung d. Brain
19. Which period is the stage of disease during which the patient begins to present general signs and symptoms?
 a. Convalescence b. Incubation c. Illness d. Prodromal
20. A toxin produced by *Staphylococcus aureus*, which it targets immune response due to release of cytokines from host cells.
 a. Leukocidin Cytotoxin c. Cadherin d. Superantigens
21. Pathogen A has an ID50 of 100 particles, pathogen B has an ID50 of 1,000 particles, pathogen C has an ID50 of 1×10^6 particles, and pathogen D has an ID50 of 50 particles, which pathogen is most virulent?
 a. Pathogen A b. Pathogen B c. Pathogen C d. Pathogen D

"انتهت الأسئلة"

Best Wishes

Prof. Nemmat A. Hussein



Assiut University



قسم النبات والميكروبيولوجي
Botany & Microbiology Dept.



Faculty of Science

1st Semester Final Exam for Biological Control and Antimicrobial Agents BT307 (2023-2024)

Time allowed: 2 hours

Score (50 marks)

الاختبار مطبوع على وجهي الورقة

Question 1: Choose the correct answer. (10 marks)

A. *Trichoderma* is a fungus.

- a) Mycoparasitic b) Phytopathogenic c) Secondary invader d) Oomycetes

B. Systemic acquired resistance (SAR) in plants is mediated by.....

- a) Succinic acid b) Ascorbic acid c) Salicylic acid d) Jasmonic acid

C. *Pseudomonas* spp. are major producers of.....

- a) Antibiotic b) Cyclic peptides c) Enzymes d) All

D. Linalool, limonene and α and β -pinene are components of

- a) Fungal antibiotic b) Bacterial antibiotic c) Essential oils d) Plant hormones

E. The active ingredient of Penicillins and Cephalosporins is

- a) Alpha-lactam b) Beta-lactam c) Gamma-lactam d) Delta-lactam

Question 2: Label the correct sentence with (✓) and wrong one with (x), and rewrite the sentence correctly if it is wrong. (10 marks)

A. Mycorrhizae are mutualistic associations between fungi and plant roots. ()

B. The minimum inhibitory concentration (MIC) is the lowest concentration of a drug.
which kills all growing microbial cells. ()

C. Alkaloids are natural plant products that are homocyclic nitrogen compounds. ()

D. Quinones are aromatic rings with two ketone substitutions, which ubiquitous in nature
and are highly reactive. ()

E. Fluconazole is antifungal drug which is usually used superficially. ()

Question 3: Identify only 5 of the following terms: (10 marks)

- | | | |
|----------------------------------|------------------------|------------------------|
| a) Antimicrobial Drug Resistance | b) Antimicrobial agent | c) Combination therapy |
| d) Antagonism | e) Inoculative release | f) Tannins |

Question 4: Give a short account on only 4 of the following: (10 marks)

- a) Biofilm Formation.
- b) Drug interactions.
- c) Inhibition of protein synthesis by antimicrobial agents.
- d) Major groups of antimicrobial compounds in plants natural products.
- e) Seed application of biocontrol agent.
- f) Viruses as biocontrol agents.

Question 5: Write in details on only 2 of the following. (10 marks)

- a) Bacteria as biocontrol agents.
- b) Competition as a kind of biocontrol method.
- c) Essential oils as biocontrol agents.
- d) Classification of antimicrobial agents based on their mechanism of action.

With my best wishes
Prof. Dr. Mohamed Hashem



Assiut University
Faculty of Science

Academic Program: Plant & Microbial Biotechnology

Studying Year : 2023/ 2024

Department: Botany & Microbiology,

Course Code BT 303

Course Title: FUNGAL BIOTECHNOLOGY

First semester

Total Degree: 50 marks January 2024

Allowable Time: Two hours

Q I. Explain only five of the following:
one)

(20 marks, 4 for each

1. Two methods to improve the productivity of fungal strains.
2. The ideal design of fungal cell factory.
3. Biotechnological applications of yeasts in the production of recombinant pharmaceutical proteins.
4. The difference between penicillin and cephalosporin based on mode of action, chemical structure and producing microbe.
5. Different characters and applications of L-asparaginase produced by fungi.
6. The different methods for improving taxol production by fungi.

Q II. What are the advantages and disadvantages of the following? (15 marks, 3 for each one)

1. Applying fungal biotechnology to improve productivity and characters of agriculture crops.
2. Use of genetic engineering to improve the fungal strains.
3. Application of lovastatin to treat high blood cholesterol.
4. Use of fed-batch fermentation for the production of penicillin.
5. Application of cold adaptive fungal lipase in industries.

Q III. Choose the correct answer from the following answers: (7.5 marks, 1.5 for each)

1. The process of transferring a laboratory fermentation process to an industrial operation is referred to as (scale-up, scale-down, down-stream).
2. The chemical structure of taxol is (Di-terpenoids, tri-terpenoids, sesqui-terpenoids).
3. Fungal productivity is calculated as (g/g, g/l, g/l/h).
4. The reduction of acrylamide in the food industry is achieved by (lipase, protease, asparaginase).
5. The fast-acting insulin analogue named (EMP insulin, insulin aspart, insulin detemir).

Q IV. Put a cross (✓) in front of the correct sentence and a cross (x) in front of the incorrect sentence of the following: (7.5 marks, 1.5 for each)

1. Hydrocarbon-degrading fungi are particularly effective in breaking down petroleum oil entering marine systems.
2. Fungal biotechnology refers to genetic engineering technology of fungal cell.
3. The active ingredient of Zokor as a cholesterol-lowering drugs produced by fungi is lovastatin.
4. Taxol is highly lipophilic and soluble in water.
5. Types I of L- asparaginases are less immunogenic enzyme.

Good Luck...

Prof. Dr.: A. A. Zohri



No. of questions: 3

No. of Pages: 3

Answer the following questions

First question: - Put (√) beside the correct answer and (X) beside the wrong answer:-

(15 marks, 0.5 mark each)

Protoderm develop from permanent tissues renew their ability to divide	()
The activity of intercalary meristem causes increase in length	()
Elongated epidermal cells can be found mostly in dicot leaves	()
The kidney shape stomata are the universal type	()
Guard cell mother cell originates by unequal division of a protodermal cell	()
Parenchyma that play a function in photosynthesis is called collenchymas	()
In dicot leaves, fibres present under epidermis accompanying large v. b.	()
Fibres are characterized by their long masses and their overlapping	()
Annular and Spiral shape lignifications are characteristic of protoxylem	()
In ferns, pits lie close together giving it a reticulate appearance	()
Commonly, transverse end walls have multiple perforations	()
Libriform fibres pit has a slit-like inner aperture, no pit cavity, no border	()
1ry phloem not contains fibres	()
Sieve areas function in connecting protoplast of adjacent sieve elements	()
Amphivasal bundle with the xylem surrounds phloem	()
The xylem and phloem of roots is best called as vascular cylinder	()
Schizogenous glands are commonly secrete resins	()
The development of stem phloem and root xylem is endarch	()
According to the expansion theory, pith is morphologically vascular tissue	()
Leaf gaps occur in all plants except mosses and gymnosperms	()
Endodermis is formed of 2 layers of cells without intercellular spaces	()
The type of 2ry xylem elements (vessels & tracheids) are of reticulate type	()
In evergreen plants, gaps are only close after the trace is broken	()
Stock and scion of closely related species are form callus and units	()
Phellen prevents water loss from inner tissues due to their suberization	()
The annual ring consists of wood called summer & winter	()
2ry thickening is the addition of more xylem and phloem by cambium activity	()
The stele of Luffa and Cucurbita stems is best called amphiphloic dictyostele	()
In <i>Nerium</i> stems, the cambium gives different amounts of 2ry xylem & 2ry phloem	()
Lateral roots originate from pelliiferous layer or pericycle	()

Question: - Choose the correct answer, put your answer in the table: -

(15 marks, 0.5 mark each)

- (1) **The meristematic tissues are characterized by:-**
 - a. large nucleus
 - b. lacking vacuole
 - c. thin cell wall
 - d. all the precedings
- (2) **Vascular cambium that present between xylem and phloem is:-**
 - a. 1ry meristems
 - b. 2ry meristems
 - c. permanent tissue
 - d. non of the precedings
- (3) **Meristem that divide in one plane called as:-**
 - a. planeless
 - b. rib
 - c. apical
 - d. all the precedings
- (4) **The number of initials of root apex of dicots are :-**
 - a. 2 (two)
 - b. 3 (three)
 - c. 4 (four)
 - d. 3 or 4 (three or four)
- (5) **The type of stomata that present in Graminae and Cyperaceae may be :-**
 - a. Dumb-bell
 - b. sunken with hairs
 - c. sunken
 - d. all the precedings
- (6) **Cruciferous type of stomata can be also called:-**
 - a. anomocytic
 - b. anisocytic
 - c. paracytic
 - d. diacytic
- (7) **Lower plants are building up of primitive tissue called:-**
 - a. fibres
 - b. collenchyma
 - c. scleriedes
 - d. parenchyma
- (8) **In dicot leaves, tissue under lower epidermis accompanying large vascular bundle is:-.**
 - a. fibres
 - b. sclereides
 - c. collenchyma
 - d. all the precedings
- (9) **Supporting tissue for their arrangement in long masses and their overlapping:-**
 - a. vessels
 - b. fibres
 - c. sclereides
 - d. sieve tubes
- (10) **Ends walls do not taper uniformly, tapering is confined to one side of the cell only.**
 - a. vessels
 - b. fibres
 - c. tracheids
 - d. all the precedings
- (11) **The type of perforation present in the vessels of angiosperms is called:-**
 - a. simpe
 - b. multiple
 - c. scalariform
 - d. all the precedings
- (12) **Libriform fibres is than fibre tracheids and its wall is**
 - a. shorter & thicker
 - b. longer & thicker
 - c. shorter & thiner
 - d. longer & thiner
- (13) **In dicot stems and leaves, the xylem vessels take the shape of:-**
 - a. V-shape
 - b. Y-shape
 - c. rows
 - d. all the preceding
- (14) **The phloem that contains fibres with sieve tubes and companion cells is called:-**
 - a. 2ry phloem
 - b. regular
 - c. irregular
 - d. all the preceding
- (15) **End wall of sieve element is when sieve plate is compound**
 - a. oblique
 - b. rectangular
 - c. transverse
 - d. absent

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- (16) The xylem and phloem of roots is best called as:-
 a. vascular cylinder b. vascular bundle
 c. vascular strips d. all the precedings
- (17) The digestive glands of *Drosera* Located on:-
 a. sepal surface b. petal surface
 c. leaf surface d. seed surface
- (18) The schizogenous and lysigenous glands secrete:-
 a. essential oils b. gums
 c. resins d. all the precedings
- (19) Development of stem phloem and root xylem is
 a. centripetal b. exarch
 c. endarch d. all the precedings
- (20) According to the expansion theory, pith is morphologically:-
 a. cortex b. vascular tissue
 c. pericycle d. endodermis
- (21) Leaf gaps occur in all plants except mosses and :-
 a. monocots b. dicots
 c. gymnosperms d. horsetails
- (22) Formed of one layer of cells without intercellular spaces around the stele
 a. ectodermis b. protoderm
 c. endodermis d. pericyclic fibres
- (23) Cambium that gives 2ry xylem to inside and 2ry phloem to outside is called:-
 a. interfascicular b. intrafascicular
 c. vascular d. all the precedings
- (24) If the knots was formed and the branch was dead, the knots are
 a. loosely held b. tightly held
 c. divided d. all the precedings
- (25) which plants possess the capacity of healing of wounds
 a. monocots b. dicots
 c. angiosperms d. all the precedings
- (26) The beetle-cork type with the cells are empty and radially elongate is called:-
 a. thick-walled b. thin-walled
 c. resinous d. tanniferous
- (27) The xylem that contains living cells and apparently conducting is called:-
 a. sap wood b. heart wood
 c. spring wood d. summer wood
- (28) The ground tissue is not differentiated into cortex and pith in:-
 a. monocot stems b. dicot stems
 c. monocot roots d. dicot roots
- (29) The cambium is normal in position and abnormal in activity in:-
 a. *Helianthus* stems b. *Jacaranda* stems
 c. *Salix* stems d. all the precedings
- (30) In monocot roots, the cells of endodermis that have thin walls are known as:-
 a. passive cells b. active cells
 c. passage cells d. parenchyma

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Question: - Answer the following questions:-

(20 marks)

a. Write short notes on the types of meristems according to method of division

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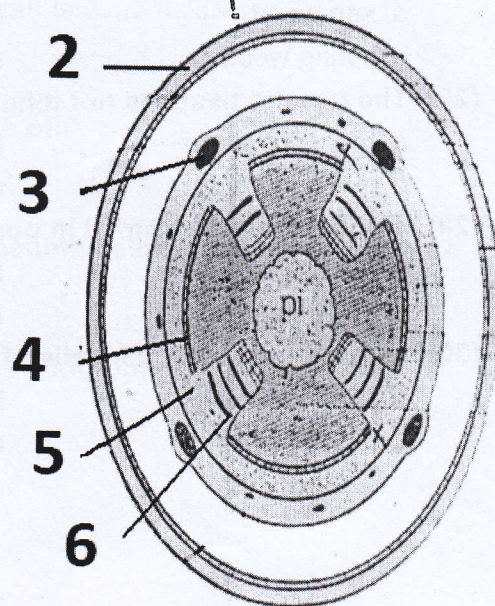
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b. Compare between 1ry phloem and 2ry phloem

	1ry phloem	2ry phloem
Function		
Arrangement		
Sieve tubes		
Fibres		

c. Beside the T.s. of ...(1), identify each layer

- 1-
-
- 2-
- 3-
- 4-
- 5-
- 6-



d. Write short notes on the healing of Wounds

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Best Wishes ...
Prof. Dr. Momen Zareh



First Semester Final Examination 2023 / 2024

Subject: Course 393B

(Microbial Toxins)

Students: (Microbiology; Chemistry and Microbiology Sections)

General Instructions: -Answer the following questions.

Q1. Place a Tick (✓) or (×) in Front of Each of the Following (20 Marks):-

1. Hemolysin is a pore-forming toxin which interacts with specific ligands on target cell surface ().
2. Anatoxin-a is a depolarizing neuromuscular blocking agent and causes death within few days ().
3. Domoic acid targets hippocampal and brain stem regions ().
4. Brevetoxins are polyether compounds composed of 6 to 8 transfused rings ().
5. Diarrhoeic shellfish poisons (DSP) are heat-unstable polyether lipophilic compounds ().
6. Cutaneous infection is the most common form of anthrax ().
7. Toxoids are the immunizing agent against diphtheria and tetanus that are part of DPT vaccine. ().
8. In protein toxin, the enzymatic component is active until it is released from the native (A+B) toxin ().
9. Aflatoxins causing convulsive and gangrenous in animal and humans ().
10. Leukoencephalomalacia is a horse disease caused by *Alternaria* toxin ().
11. AFB₁ is not stable in orange Juice and chesses containing SO₂ but stable in apple juice and grain ().
12. Aflatoxin D, P₁, and other derivatives are detected in *Aspergillus flavus* extracts ().
13. Ergot alkaloids are produced by *Aspergillus*, *Penicillium*, *Stachybotrys*, and *Claviceps purpurea* ().
14. Sterigmatocystin is decomposed by normal cooking at 60°C ().
15. X-turkey disease acts as a neurotoxin ().
16. Floating the infected grains by 30% KCl removed the ergot toxin [chemical detoxification method] ().
17. Ingested alternariol by human is causing the decrease in human blood presser ().
18. Lethal toxins refers to the toxins that are responsible for death ().

Best Wishes & Good luck

Prof. Ahmed Lotfy El-Sayed

Prof. Eman Mostafa Mohamed

19. Endotoxin is volatile sulfur compound; polyamines; and short chain carboxylic acid ().
20. Tetanus causing by *Clostridium tetani* toxin is preventing the transmission of glycine and γ -aminobutyric acid from inhibitory interneurons in the spinal cord, leading to spastic paralysis ().

Q2. Choose the Correct Answer (13 Marks):

[1]. Which one of the following inhibits glutathione synthesis, protein synthesis and accumulates lipid compound in the liver?

- a. anatoxin-A b. domoic acid c. cylindrospermopsin d. nodularin

[2]. Which group of the following is mainly produced by *Dinophysis caudata*?

- a. PSP b. DSP c. NSP d. ASP

[3]. Which one of the following shows specific bindings to site-5 of voltage-sensitivity Na^+ channels?

- a. neosaxitoxin b. brevetoxins c. nodularin d. okadaic acid

[4]. Which one of the following toxins utilizes NAD as a substrate?

- a. cholera b. diphtheria c. anthrax d. H_2S

[5]. Which toxin of the following activates adenylate cyclase enzyme in cells of intestinal mucosa?

- a. H_2S b. cholera c. anthrax d. putrescine

[6] Aflatoxin Q_1 is an aflatoxin derivative formed as a metabolites in

- a. milk b. urine c. monkey urine d. fungal extract

[7] Ergot alkaloids and ochratoxins are common in.....region but aflatoxins are common in ... region

- a. Cold b. Warm c. Tropical & subtropical d. drought

[8] Citrinin is produced by fungal genera

- a. one b. two c. three d. four

[9] Keshan disease in humans caused by toxin produced by

- a. *Aspergillus* b. *Stachybotrys* c. *Claviceps* d. *Fusarium*

- a. Ergot alkaloids b. zearalenone c. Malformin d. citrinin

[10] Balkan endemic nephropathy are caused by

- a. Patulin b. citrinin c. Zearalenone d. ochratoxin

[11] is genotoxin, carcinogenic, and immune suppression. It common on apple fruits & juice

- a. Trichothecenes b. citrinin c. Zearalenone d. Patulin

[12] Alternariol is produced byand act as

- | | | | |
|----------------------|------------------------|---------------------|--------------------|
| a. Cardiotoxin | b. Estrogenic | c. Hepatotoxin | d. Phytotoxin |
| e. <i>Alternaria</i> | f. <i>Stachybotrys</i> | g. <i>Claviceps</i> | h. <i>Fusarium</i> |

[13] Mycotoxin management by(chemically, physically and biologically).

- | | | | |
|---------------|------------|-------------------|----------------------------|
| a. prevention | b. removal | c. detoxification | d. all choices are correct |
|---------------|------------|-------------------|----------------------------|

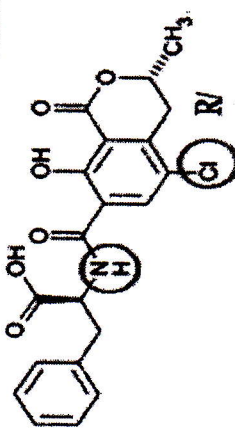
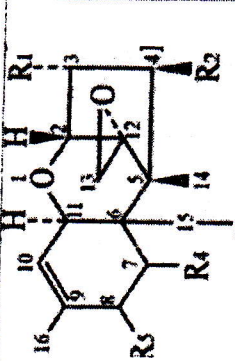
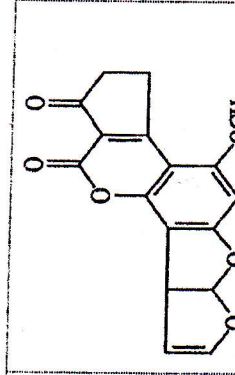
Q3a. Answer each of the following (17 Marks): -

- a. From PSP, saxitoxin is the most potent one. Discuss this statement, illustrate its chemical structure and refer to the most producing algal species and cause of death by this toxin. (7 marks)
- b. Write briefly the mechanism of action of 2 only from the following: (5 marks)
 - i. Nodularin.
 - ii. Okadaic acid.
 - iii. Anatoxin-a.

Q3b. Give the scientific word about the following (Three Marks): -

1. is named St. Anthony's Fire .
2. named yellow rice fever in humans.
3. Alimentary hemorrhage and vomiting caused by
4.target the heart and cardiac muscles.
5.has the estrogenic and infertility effect.
6. turkey-X-diseases act as carcinogenic, hepatotoxic, mutagenic and teratogenic.

Q3c- Complete the following table (Two Marks):-

Toxin			
Name	[1]	[2]	[3]
Producers			
Effective site on the toxin molecule			
Decomposed at			



With best regards -----Professor Dr: Sanaa Mohamed Fahmy

A) True B) False

A) True B) False

A) True B) False

A) True B) False

A) True B) False

A) True B) False

A) True B) False

A) True B) False

A) True B) False

1- The end products of PHA degradation in anaerobic conditions is

- With best regards -----Professor Dr: Sanaa Mohamed Fahmy

A) True B) False

A) True B) False

A) True B) False

A) True B) False

A) True B) False

A) True B) False

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A) True B) False

1- The end products of PHA degradation in anaerobic conditions is

(a) **water**

(b) **carbon dioxide**

(c) **methane**

(d) **ammonia**

With best regards -----Professor Dr: Sanaa Mohamed Fahmy

10- *Clostridium thermoaceticum*

- (a) An obligate anaerobe
- (b) Gram-positive, spore-forming
- (c) rod-shaped, thermophilic organism
- (d) all of them

11- Streptokinase produced by.....

- (a) *E. coli*
- (b) *Streptococcus pyogenes*
- (c) *Achromobacter* spp.
- (d) Lactobacilli spp

12- L-glutaminase produced by.....

- (a) *E. coli*
- (b) *Streptococcus pyogenes*
- (c) *Achromobacter* spp.
- (d) Lactobacilli spp

13- β -galactosidase produced by.....

- (a) *E. coli*
- (b) *Streptococcus pyogenes*
- (c) *Achromobacter* spp.
- (d) Lactobacilli spp

14- Proinsulin which also contains

- (a) One poly peptide chain
- (b) Two poly peptide chains
- (c) Three poly peptide chains
- (d) four poly peptide chains

15- Organism used in soft cheese.

- (a) *Lactococcus lactis*
- (b) *Streptococcus cremoris*
- (c) *Brevibacterium linens*
- (d) *Kliebsiella*

16- Yoghurt is produced by the controlled fermentation of milk by two species of bacteria

- (a) *Lactobacillus bulgaricus* and *Lactococcus thermophilus*
- (b) *Streptococcus cremoris* and *Lactococcus thermophiles*
- (c) *Lactococcus lactis* and *Brevibacterium linens*
- (d) *Lactococcus lactis* and *Streptococcus cremoris*

17-These enzymes cleave at random sites far away from the restriction sites. Thus they are not used in the recombinant technology.

- (a) Type I
- (b) Type II
- (c) Type III
- (d) Type IV

18-A straight cut by the restriction enzymes generate strands that terminate in a base pair.

- (a) Blunt ends
- (b) Cohesive ends
- (c) Sticky end
- (d) Type IV

19-Whole or skimmed milk is fermented with

- (a) *Lactococcus lactis*
- (b) *Streptococcus cremoris*
- (c) *Brevibacterium linens*
- (d) *Lactobacillus acidophilus*

20- *Alcaligenes eutrophus* contains. granules of PHB

- (a) 8-13
- (b) 7-12
- (c) 6-13
- (d) 8-12

Part 3: Write briefly on

A- There are ways to identify mutagens. Give one example in detail.

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With best regards -----Professor Dr: Sanaa Mohamed Fahmy

- 12) Symplastic movement of water takes place through
 - a- The cell wall
 - b- The plasmodesmata
 - c- The casparian strips
 - d- Through endodermis
- 13) Root pressure is due to
 - a- Active absorption
 - b- Passive absorption
 - c- Increased turgidity
 - d- Increased transpiration
- 14) The most widely accepted theory for ascent of sap is
 - a- Root pressure theory
 - b- Pulsatory theory
 - c- Capillarity theory
 - d- Cohesion theory
- 15) With rise in turgidity, wall pressure will
 - a- Increase
 - b- Decrease
 - c- Remain constant
 - d- Fluctuating
- 16) Exudation of xylem sap on cutting of a shoot is due to.....
 - a- Guttation
 - b- Root pressure
 - c- Transpiration
 - d- None of the above
- 17) 0.5 mole of sucrose in 0.5 litre of water, the water mole fraction=
 - a- 0.491
 - b- 1.965
 - c- 0.982
 - d- 0.5
- 18) In equilibrium, the water vapor potential at 20 C° above 1M NaCl solution equals....
 - a- -2.4 MPa
 - b- -3.6 MPa
 - c- -24 bar
 - d- -4.8 MPa
- 19) As the water content of a soil decreases, the hydraulic conductivity
 - a- Decreases
 - b- Increases
 - c- Does not change
- 20) When a gas bubble formed within the water column under tension, it will expand because gases cannot resist tensile forces. This phenomenon is known as
 - a- Cavitation
 - b- Embolism
 - c- Air seeding
 - d- a and b
- 21) The ability of water to resist a pulling force is termed as
 - a- Hydrostatic pressure
 - b- Tensile strength
 - c- Vapour pressure
 - d- Osmotic pressure

Q2) a- Write on the main biologically important properties of water – Discuss the role of polarity and hydrogen bonds. (8 Marks)

b- How much the sap ascent by capillary action in a xylem vessel with a radius 10 μm ? (3 Marks)

Q3) Define each of the following: (Answer three only)

(3 x 3= 9 Marks)

- 1- Aquaporins.
- 2- Root pressure.
- 3- Matric potential.
- 4- Transpiration pull.

Q4) Answer two only:

(2 x 5= 10 Marks)

- a- Compare between transpiration and guttation.
- b- Explain the different pathways by which water moves within the roots and quantify the root hydraulic conductance.
- c- With a diagram describe the types of resistances against transpiration pathway.

Good Luck

Prof. Dr. T. Ramadan



**First semester
Final exam. (2023-2024)
Plant Cell (Code : 323 B)
2nd level students**



**Biochemistry and Microbiology
Department**

**For Biotechnology
Undergraduate students
Date: 5/1/2024**

**Time allowed
2 hours**

Assiut University

A. Choose the correct answer..... (20 marks)

1. Cytoskeletal structure that play role in cell shaping, mobility and anchoring

- | | | | |
|---|-----------------------|---|--------------|
| A | Microfilament | C | Flagella |
| B | Intermediate filament | D | Microtubules |

3. Embedded in the plasma membrane and may span all or part of the membrane

- A Glycoproteins
B Glycolipids
C Intrinsic proteins
D Peptide bonds of amino acids

5. The diameter of mitochondrion is

- | | | | |
|---|---------------------|---|------------------|
| A | 0.5 – 1.00 μ | C | 5.0 – 10.0 μ |
| B | 150.0 – 300.0 μ | D | 50.0 -200 μ |

7. All the membrane bound cell organelles except

- | | | | |
|---|--------------|---|--------------|
| A | Lysosomes | C | Ribosomes |
| B | Mitochondria | D | Sphaerosomes |

9. If the base sequence of the strands of DNA is CAT ATC CAT GAC ACT, what will be the base sequence of complementary RNA strand

- A GUA UAG GUA CUG UGA
B GUT TAG GTA GTC TGA
C GUA UAG GTA CUG UGA
D GTA TAG GTA CTG TGA

11. The leucoplast which store lipids are called

- A Chromoplast
B Amyloplast
C Elaioplast
D Aleuroplast

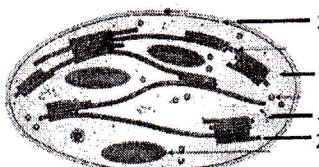
13. The correct sequence of parts of a plant cell, starting from outer to inside

- A Middle lamella, primary wall, secondary wall, plasma membrane, tonoplast
B Middle lamella, secondary wall, primary wall, plasma membrane, tonoplast
C Plasma membrane, primary wall, secondary wall, plasma membrane, tonoplast
D Primary wall, middle lamella, secondary wall, plasma membrane, tonoplast

2. Proteins enter Golgi apparatus from side (facing ER) and exit from side (facing cell membrane)

- | | | | |
|---|------------|---|-------------|
| A | Cis, Trans | C | Beta, Trans |
| B | Cis, Beta | D | Trans, Cis |

4. Light reaction of photosynthesis occurs in

- | | | |
|---|---|--|
| A | 1 |  |
| B | 2 | |
| C | 3 | |
| D | 4 | |

6. SER contains several key enzymes concerned with

- | | | | |
|---|------------------------|---|-----------------------|
| A | Protein synthesis | C | Fatty acid synthesis |
| B | Peptide bond synthesis | D | Cholesterol synthesis |

8. Are basically chloroplasts that are going through the aging process

- | | | | |
|---|--------------|---|-------------------|
| A | Gernotoplast | C | Amyloplast |
| B | Leucoplast | D | Death chloroplast |

10. The presence of DNA in mitochondria and chloroplast support the hypothesis that

- A ATP is produced in mitochondria as well as in chloroplast
B Glycolysis occurs in both of mitochondria and chloroplast
C They both originated as independent free-living organisms then inserted inside the eukaryotic cells
D Mitochondria and chloroplast undergo meiosis and mitosis, independent of nucleus

12. In figure of page 2; the labels 11 and 12 refer to

- A tRNA carrying polypeptide
B rRNA carrying amino acid
C rRNA carrying anticodon
D tRNA carrying amino acid

14. Packaging of the protein molecules before they are sent to their destination is the function of

- A Dictyosomes
B Protiosomes
C Polysomes
D Chondriosomes



**First semester
Final exam. (2023-2024)
Plant Cell (Code : 323 B)
2nd level students**



**Botany and Microbiology
Department**

**For Biotechnology
Undergraduate students
Date: 5/1/2024**

**Time allowed
2 hours**

Assiut University

15. In figure of page 2; the labels 4, 9 and 10 refer to

- | | | | |
|---|---------------------------|---|---------------------------|
| A | Thymine, codon, anticodon | C | Purine, codon, anticodon, |
| B | Pyrimidine, Purine, codon | D | Uracil, codon, |
| | | | anticodon |

17. Microfilament of cytoskeleton composed of

- A Actin protein
- B Actinase enzyme
- C Keratin protein
- D Desmin protein

19. Suffix S in the ribosome indicates

- | | | | |
|---|------------------------|---|---------------------------|
| A | Solubility coefficient | C | Sedimentation coefficient |
| B | Stability coefficient | D | Both A and C |

16. which contains the other three

- | | | | |
|---|------------------|---|---------------|
| A | nitrogenous base | C | nucleotide |
| B | nucleoside | D | pentose sugar |

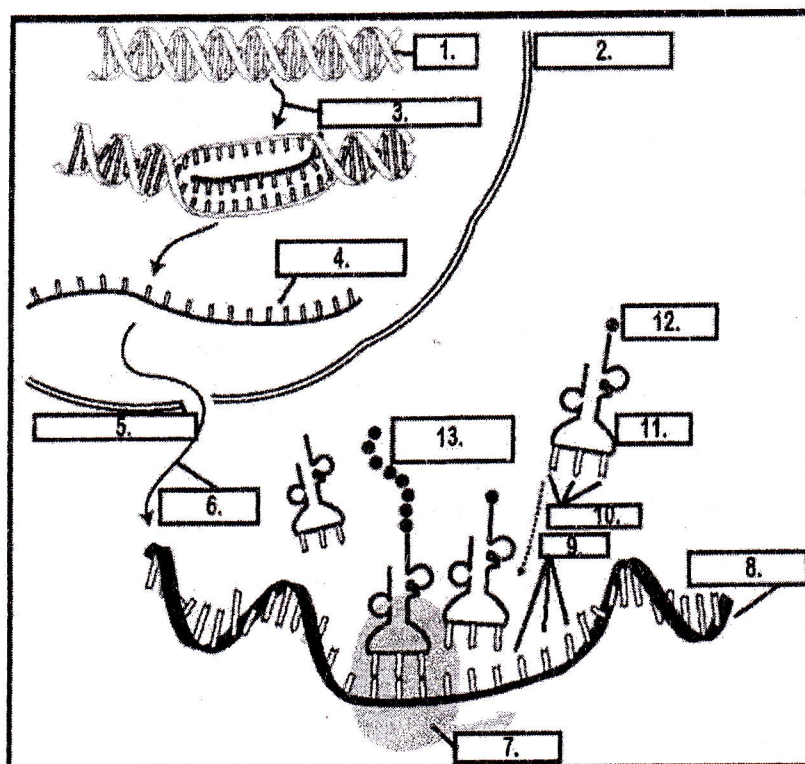
18. In figure of page 2; the label 3 refer to

- A DNA un-helication
- B Protein synthesis
- C DNA replication
- D RNA transcription

20. In figure of page 2; the ribosome must be

- | | | | |
|---|-----|---|-----|
| A | 80S | C | 50S |
| B | 70S | D | 40S |

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20



	First semester Final exam. (2023-2024) Plant Cell (Code : 323 B) 2nd level students		
Botany and Microbiology Department	For Biotechnology Undergraduate students Date: 5/1/2024	Time allowed 2 hours	Assiut University

B. Match statements in column A with suitable term in column B (20 marks)

- A**
- The stage of meiosis when the paired homologous chromosomes exchange their segments
 - The exchange from equal segments of maternal and paternal chromosomes
 - It made up of a heterodimer protein and have two distinct ends (+ and -)
 - A region of a chromosome pair where chromosomal segment exchange take place during prophase I
 - The division of cytoplasm in two daughter protoplasts
 - Droplet like fibrous structure formed at the equatorial plate during the division of cell cytoplasm
 - The main component of the endomembrane system (cyto-cavity network)
 - Occur freely in the cytoplasm of prokaryotes and may surface-attached in eukaryotes
 - A stage in which chromosomes are arranged on the equatorial plate
 - Mitosis stage in which chromosomes move towards opposite poles
 - Interphase and cell division stages collectively considered as one process called
 - They are the photosynthetic units, and consist of photosystems (PS I and PS II)
 - Involves two Division of nucleus and one Division of chromosomes
 - During of meiosis, entire chromosome moves to the pole
 - It is involved in the secretion of cell products
 - It is rich in catabolic enzymes
 - Tonoplast is the membrane surrounding
 - Cell organelle form a complex (called Polysome) with RNA types
 - Lytic Action in which cell organelles covered by vesicles to form
 - Membrane-bound discoid compartment inside chloroplast

B

A	Vacuole
B	Thylakoid
C	Synapsis
D	SER
E	Ribosome
F	Phragmoplast
G	Pachytene
H	Microtubules
I	Metaphase
J	Meiosis
K	Lysosomes
L	Golgi apparatus
M	Autophagosome
N	Cytokinesis
O	Crossing over
P	Cell cycle
Q	Anaphase I
R	Anaphase
S	Quantosomes
T	Mitosis

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

	First semester Final exam. (2023-2024) Plant Cell (Code : 323 B) 2nd level students		
Botany and Microbiology Department	For Biotechnology Undergraduate students Date: 5/1/2024	Time allowed 2 hours	Assiut University

C. Complete the following spaces (10 marks)



1. Labels

- 1 =
- 2 =
- 3 =
- 4 =

2. Name of organelle
3. The appropriate instrument takes such picture is
4. Function of the organelle
5. The outer medium responsible for the first stage of an important process; that related to this organelle. This process called
6. Organelle length (..... μ) and width (..... μ).

Best Wishes!

Dr. Ahmed Amro

Assistant Professor in Botany and Microbiology Department



No. of questions: 3

No. of Pages: 3

Answer the following questions

First question: - Choose the correct answer, put your answer in the table below: -

(15 marks, 0.5 mark each)

- (1) Abu Bakr ar-Razi produced 20 volumes of therapeutics named
a. Canon of Medicine b. Simple drugs c. Continens d. Materia Medica
- (2) The medicinal book named *Minhag ad-Dukkan* was wrote by
a. Ibn al-Baitar b. Abu Ga'far al-Ghafiqi c. Dawud Al-Antaki d. Dawud Abi Nasir
- (3) Herbalism, also known as
a. phytotherapy b. herbology c. herbal medicine d. all of the preceding
- (4) The ancient Egypt reported some pharmacopial plants on:-
a. Ebers walls b. colored papers c. Ebers papayrus d. all the preceding
- (5) In some parts of Egypt, as well as other Arab countries, the healer is known as:-
a. hakim b. experience c. ethnobotanic d. non of the preceding
- (6) The modern development of phytotherapy requires the integration of:-
a. ethnobotany b. agrotechnical c. marketing d. all of the precedings
- (7) Flowers of the family Apiaceae are small, arranged in
a. capitula b. corymbs c. umbels d. scorpioides
- (8) Meladinine is used for leukemia and extracted from
a. *Ammi majus* b. *Cuminum cuminum* c. *Artemisia judaica* d. all of the preceding
- (9) *Anethum graveolens* (الشبث) is a herb used for
a. Snakebites b. skin diseases c. Lithontripic d. culinary
- (10) Seeds of are one of the key plants used to flavour gin
a. *Coriandrum sativum* b. *Carum carvi* c. *Ammi majus* d. all of the preceding
- (11) Leaf juice of is a used for blepharitis and conjunctivitis.
a. *Petroselinum sativum* b. *Carum carvi* c. *Ammi majus* d. *Apium graveolens*
- (12) *Artemisia judaica* is a medicinal plant belonging to the family
a. Asteraceae b. Asclepiadaceae c. Brassicaceae d. Apiaceae
- (13) Fruit pulp of plant is rich in tartaric and citric acids, high amount of vitamin C
a. *Tamarindus indica* b. *Sinaps nigra* c. *Pimpinella anisum* d. *Solenostemma arghel*
- (14) its fruits is used as an anti-rheumatic cure in traditional medicine
a. *Citrullus colocynthis* b. *Tamarindus indica* c. *Sinaps nigra* d. *Chenopodium ambrosoides*
- (15) Hebanox is a drug extracted from *Silybum marianum* and used for :-
a. Snakebites b. skin diseases c. liver diseases d. non of the preceding
- (16) *Sinapis nigra* is a medicinal plant used for
a. appetizer b. stimulant c. rubefacient d. all of the preceding

- Myristica fragrans* is a domestic plant used for
- a. stimulant b. **spices** c. anti-diarrhoea d. all of the preceding
- (18) its buds have a warming effect easing away stress, anxiety and tension
- a. *Myristica fragrans* b. *Tamarindus indica* c. *Lawsonia inermis* d. *Eugenia caryophyllata*
- (19) Family Euphorbiaceae is characterized by
- a. compound leaves b. cythium c. inferior ovary d. all of the preceding
- (20) *Glycyrrhiza glabra* is a medicinal plant used as
- a. cough syrups b. expectorant c. tooth powders d. all of the preceding
- (21) *Origanum majorana* is a medicinal plant used for
- a. cough syrups b. antispasmodic c. tooth powders d. all of the preceding
- (22) its fruits and leaves is used in Arab countries as a natural pigments
- a. *Lawsonia inermis* b. *Tamarindus indica* c. *Sinaps nigra* d. *Origanum majorana*
- (23) *Papaver somniferum* is a domestic plant used for
- a. anti-infectious b. regulate thyroid c. addictive drug d. all of the preceding
- (24) *Cymbopogon proximus* is a medicinal plant belonging to family
- a. Myristicaceae b. Poaceae c. Myrtaceae d. Lamiaceae
- (25) *Zizyphus sativa* is a domestic plant used for
- a. anti-infectious b. regulate thyroid c. antidote d. all of the preceding
- (26) widely used for making ginger tea or as a spice or food additive.
- a. *Datura stramonium* b. *Atropa belladonna* c. *Nicotiana tabacum* d. *Zingber officinale*
- (27) After childbirth, women used hot drinks of its powdered as a tonic and lactagogue.
- a. *Zingber officinale* b. *Atropa belladonna* c. *Nicotiana tabacum* d. *Glossostemon bruguieri*
- (28) *Salvadora persica* is a domestic plant used for
- a. toothbrush b. anti-cancer c. Asthma d. all of the preceding
- (29) *Verbascum thapsus* is a domestic plant used for
- a. hemorrhoids b. anti-cancer c. Asthma d. all of the preceding
- (30) *Hyoscyamus muticus* is a domestic plant used for
- a. hemorrhoids b. anti-cancer c. narcotic d. Asthma

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Second question: - Put (√) beside the correct answer and (X) beside the wrong answer

(15 marks, 0.5 mark each)

Seeds of <i>Solenostemma argel</i> are used as a diuretic	()
Fennel is a flowering plant species belonging to family Brassicaceae	()
<i>Matricaria chamomila</i> is a medicinal plant used for psoriasis and aprains	()
Fruits of <i>Cassia fistula</i> and <i>Senna italica</i> are used as rubefacient	()
The medicinal herbs have always been considered as folk medicine	()
Ethnobotanical information is leading to the discovery of novel phytoplankton	()
Ibn Sina wrote a section in his book of medicine named Canon of Medicine	()
The active principles differ from plant to plant due to their biodiversity	()
<i>Apium graveolens</i> is among the plants that used for treatment of toothache	()
The volatile of <i>Chenopodium ambrosoides</i> is used as an anthelmintic	()
<i>Ricinus communis</i> seeds contain about 50 % oil, used as a strong purgative	()
<i>Trigonella foenum-graecum</i> fruits is used as an anti-cholesterolemic	()
<i>Mentha viridis</i> oil is a domestic plant used for chest pains and tooth whiten	()
<i>Thymus serpyllum</i> oil is a domestic plant used as expectorant and deodorant	()
<i>Hibiscus sabdariffa</i> is used as herbal tea, expectorant and deodorant	()
Myrtaceae is characterized by numerous stamens and inferior ovary	()
Myristicaceae is characterized by lactiferous, milky or watery latex	()
<i>Nigella sativa</i> is a medicinal plant belonging to family Ranunculaceae	()
<i>Atropa belladonna</i> and <i>Nicotiana tabacum</i> are belonging to family Atropaceae	()
Cuminum is said to help in treatment of common cold, when added to hot milk	()
Anise essential oil is used to treat scabies	()
Leaves of <i>Pimpinella anisum</i> are used in indigenous medicine for liver and kidney	()
<i>Eclipta prostrata</i> is a medicinal plant used for Snakebites	()
Carpusculum and caudicle is parts of the pollinia of Asclepiadaceae	()
The papilionaceous corolla is characteristic to Asclepiadaceae	()
Family Lythraceae is characterized by bilabiate corolla	()
Family Chenopodiaceae is characterized by petaloid tepals	()
Trade in the drugs obtained from wild plants is very common everywhere	()
Poaceae is the first family recognized by botanists and subjected to systematic	()
Seeds of <i>Carum carvi</i> is widely used as a culinary spice	()

Third question: - (20 marks)

Write short notes about 3 (three) only of the following plants and their uses as a domestic plant:-

- a. *Ammi majus*
 - b. *Solenostemma argel*
 - c. *Matricaria chamomile*
 - d. *Glossostemon bruguieri*
-

Best Wishes ...

Prof. Dr. Momen Zareh & ~~Dr. Mona Hassan~~

A. Write on all of the following questions: (20 Marks, 4 for each)

- 1- Economic importance of Fungi
- 2- Nutritional requirements for fungal growth
- 3- Methods for preservations of fungi
- 4- Yeast mechanism for osmotic stress, with examples
- 5- Functions of fungal cell wall

B. Compare between all of the following: (16 marks, 4 for each)

- 1- Surface and Submerged culture of fungal growth
- 2- Effects of Ionizing and non-Ionizing radiation on fungal growth
- 3- Chemical Cell wall composition of Oomycetes and Zygomycetes
- 4- Importance of Zn and Ca metals for fungal growth

C. Answer with (X) or (✓) All the following: (5 marks, 1 for each)

- 1- Plasma membrane is the rigid outer layer surrounding the fungal cell ()
- 2- Metabiosis is known as the presence of specific organism is very ()
important for the growth of other organism
- 3- Cu element is important for fungal sporulation ()
- 4- Growth rate is change in amount of fungus growth per unit of time ()
- 5- Flavonoids stimulate the growth of Ascomycetes and Mycorrhizal fungi ()

D. Choose the correct answer of all of the following: (5 marks, 1 for each)

- 1- Which one of the following effects on some fermentation process like production of citric acid, some vitamins and antibiotic ?

(Cu - Mn - Fe - Mo)

أنظر الى الخلف

2- Which one of the following phases which fungi are constantly doubling - rapid growth / reproduction diagnostic testing effective in this phase?

(Log phase – Lag Phase – Stationary phase – Death phase)

3- Which one of the following inhibitors effect on cell wall synthesis of fungal cell?

(Fluconazole – Polyenes – Nystatine – Echinocandins)

4- Which one of the following groups of fungi which prefer grows on pickles and salt stored meats?

(xerophilic - Halophilic – Osmophilic – Thermophilic)

5- Which one of the following is essential for fungal growth?

(Manganese – Iron – Nitrogen – Zinc)

E. Give reasons for all of the following: (4 marks, 2 for each)

1- Presence of Pigment in fungal cell wall.

2- A few aquatic fungi are obligately fermentative.

Dr/ Maysa M. A. Ali



Plant Geography 341 N
Time: Two hours
Total degree: 50 marks

First semester exam - the academic year 2023/2024
Third Level
Exam date: Tuesday, 23/1/2024

Q1- Choose the right answer.

30

- 1- Koppen presents a more detailed classification based on the duration of these critical temperatures: belts: 4-12 months between 10 C and 20 C.
a- Subtropical b- Temperate c- Cold
- 2- Precipitation has profound effect on vegetation. A simple scheme may be:10-20 inch rainfall 25-50 cm.
a- Sub humid b- Arid c- Semiarid
- 3-forest is a great belt extensively developed in sub arctic regions of North America and Eurasia between latitudes 50 N and 65N. A zone of long cold winter and very short summer.
a-Tropical rain b- Broadleaf c- Coniferous
- 4-such plants, or detached portions bearing the seeds, tend to roll before the wind, usually scattering their seeds or fruits as they go. They are commonly short-lived herbs.
a- Winged seeds b- Tumble weeds c- Plumed seeds
- 5- seeds are these usually bear a light tuft of silky hairs at one end and are liberated from a capsular fruit which on splitting only releases them gradually, often one by one. The plants involved are usually herbs.
a- Plumed b- Winged c- Dust
- 6- are short grass vegetation in regions of semi-arid climate. Summers are commonly dry. Most extensive in central and south east Asia.
a- Steppes b- Coniferous c- Savanna

7-is grassland with scattered trees, typified by tropical plains in Africa, India and South America. It has a long dry season alternating with a wet season, no winter cold.

a- Desert shrub

b - Savanna

c- Ice cap

8- element is the geographical distribution and areas occupied by systematic units.

a- Floristic

b- Ecological

c- Edaphic

9- are perennial herbs and some under shrubs with renewal buds between ground level and 25 cm. height. These plants are usually dominated in boreal and alpine regions

a- Phanerophytes

b- Chamaephytes

c- Therophytes

10- have the perennating organs (such as bulbs, tubers, or rhizomes) well buried in the soil and therefore not exposed in unfavorable seasons.

a- Phanerophytes

b- Hemicryptophytes

c- Geophytes

11- forest: growth more open and scattered than tropical jungle. Long dry season alternating with a very wet season. Temperatures are high throughout the year.

a- Coniferous

b- Mediterranean scrub

c- Scrub and thorn

12- are grassland widespread in central unites states, Eastern Europe and Argentina Uruguay areas. They lie on the boundary between dry and humid climates.

a- Prairie

b- Coniferous

c- Savanna

13-is treeless expanses in the summer less arctic regions, covered with sedges mosses and lichens. Long and cold winters predominate, saturated ground frozen during most of the year.

a- Desert shrub

b- Tundra

c- Ice cap

14- A..... group in which there is no summer.

a- polar

b- tropical

c- temperate

15- Precipitation has profound effect on vegetation. A simple scheme may be: 20-40 inch rainfall 50-100 cm.

a- Semiarid

b- Sub humid

c- Humid

16- scattered drought-resistant shrubs. extremely dry and hot deserts of the world
Rain falls low and sporadic.

a- Desert shrub

b- Tundra

c- Ice cap

17- is the effect of organisms on environment.

a- Action

b- Reaction

c- Coactions

18- area when it is composed of only two separate parts in the same hemisphere. one of which is extensive and forms the main part and the other of which is subordinate.

a- Bipolar

b- Bipartite

c- Diffuse

19-: these are the main disseminules of most of the groups of plants and are often produced in great numbers. Although extremely variable in size and form.

a- Ectozoic

b- Endozoic

c- Spores

20- area.: when it is broken up into small, more or less numerous and equal parts

a- Altitudinal

b- Heterogeneous

c- Diffuse

21- endemics: these are the relatively young taxa. usually below the rank of species which characteristic of a newer portion of the earth's surface.

a- Micro

b- Relic

c- Antarctic

22- forest is the forest growth less dense than rainforest. smaller trees. dense tangled under growth. It indicates high temperatures throughout the year but with a short dry season interrupting another wise heavy rainfall regime.

a- Lighter tropical

b- Coniferous

c- Broadleaf

23-: are the plants distributed all over the globe. These wide-ranging plants which tend to be indifferent to environmental conditions. They should at least occur in all the six continents.

a- Circumboreal

b- Circumpolar

c- Cosmopolitan

24- are the plants extending practically throughout the tropics and subtropics, or at least widespread in the tropical region of Asia, Africa and America. A fine example is the palm family (palmae).

a- Pantropic

b- Circumpolar

c- Circumboreal

25- area is if different component parts of the range, occupying by not identical forms.

a- Homogeneous

b- Heterogeneous

c- Altitudinal

26- plants are the plants distributed around the top (or bottom) of the world in the austral zone.

a- Phanerophytes

b- Chamaephytes

c- Circumboreal

27-, mostly trees or shrubs, with their renewal buds on shoots at least 25 cm. above the surface of the ground. They are especially numerous in moist areas of the tropics and subtropics.

a- Phanerophytes

b- Chamaephytes

c- Therophytes

28- have perennial shoots and buds at ground-level or within the surface layer of soil, etc., and hence protected by the habitat.

a- Geophytes

b- Hydrophytes

c- Hemicryptophytes

29- include all water plants, whether anchored or not, apart from microscopic free floating or swimming types which form the main basis of the separate category known as "plankton".

a- Hydrophytes

b- Phanerophytes

c- Geophytes

30- A group one of three major climate groups in which temperatures are uniformly warm, no winter season occurs. No month has a mean temperature below 20 C.

a- polar

b- temperate

c- tropical

Q2: Write on:

20

1- Plant geography comprises three distinct elements....?

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2- Classification based on the duration of critical temperatures?

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3- The principal factors seem to control temperatures?

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4- Methods of plant geography? Write 5.

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5- Dispersal by water and ice?

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6- Endemic species are localized in their area. Why endemism?

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7- Of continuous intercontinental ranges we may consider four main types...?

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8- On the basis of the age and origin of relics they can be classified into the main classes.....?

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This image shows a full page of a handwriting practice notebook. The page is white and features approximately 20 horizontal rows of small black dots, designed to guide letter height and placement. There are no margins, text, or other markings on the page.

This image shows a single sheet of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Prof. Dr. Hanaa Kamal Galal



Final Exam
2023/2024



Botany&Microbiology

Advanced virology (B 381)

Faculty of Science

Department

(Credit hours)

Time: 2 hours

Special Microbiology Students

Answer the following: [Total 50 marks]

Q1: Choose the Correct Answer (15 marks)

- 1- Which of the following nucleic acid present in most bacteriophages ?
a-ssRNA b-ssDNA c-dsRNA d-dsDNA
- 2- Which of the most common capsid shape of the viruses ?
a-cub b-rod c-icosahedron d-cone
- 3- The chemical component presents in all viruses is
a-RNA d-DNA c-lipid d-protein
- 4- Which of the following phase determines the specificity of virus ?
a-uncoating b-release c-attachment d-penetration
- 5- Which of the following vaccines not used in pregnant females ?
a-killed vaccines b-attenuated vaccines c-subunit vaccines d- all of the mentioned
- 6-Which substance can mixed with killed vaccine to enhance its action?
a- Adjuvant b-antibody c-antigen d-serum
- 7- All genes of viruses can be directly accessed by host ribosomes to immediately form proteins.
a-dsRNA b-dsDNA c-positive-sense ssRNA d-negative-sense ssRNA
- 8- Virus enters the animal body by
a- inhalation b- vaccination c- antibody d-all of the mentioned
- 9- Which virus has two copies of their genome ?
a-HIV b-HCV c-EBV d-TMV
- 10- Poliovirus has nucleic acid
a-ssRNA b-ssDNA c-dsRNA d-dsDNA
- 11- Rhabdoviruses infect

a-Human b-plants c- animals d- all of the mentioned

12- All DNA viruses are dsDNA except

a-Adenoviruses b-Herpes viruses c-Boxviruses d-Parvoviruses

13- Human virus disease is controlled by.....

a-antiviral drugs b- drugs enhancing immune response c- vaccination
d- all of the mentioned

14- Paltimore classified viruses on the basis of

a-DNA structure b-RNA structure c-replication strategies d- protein structure

15- Which of the following virus infects liver

a-HIV b-HCV c-EBV d-all of the mentioned

Q2: Put true (✓) or false(X) on the following sentences: (10 marks)

- 1- Capsid is responsible for protecting genetic information. ()
- 2- siRNA is double strands while miRNA is single strand. ()
- 3- The nucleic acid of Epola virue is segmented into 8 segments. ()
- 4- The vaccines developed for the treatment of viral infection. ()
- 5- RNA interference (siRNA) consider as Post-Transcriptional Gene Silencing. ()
- 6- RISK responsible for cleaving of DNA into smaller fragments. ()
- 7- All RNA viruses are ssRNA except Reoviruses. ()
- 8- Viruses can be cultivated in synthetic media. ()
- 9- HIV has haploid nucleic acid. ()
- 10- Envelope represents the most common structure in the plant viruses. ()

Q3: What meant the following abbreviation? (5 marks)

a-RISK b- siRNA c- CRISPR d- HIV e- ICTV

Q4: Give the definitions for the following: (5 marks)

a-Nucleocapsid b-Immunogenicity c-Hapten d-Titre e-subunit vaccine

Q5: Explain with drawing three only of the following (15 marks)

a-siRNA mechanism b-Steps of original CRISPR-Cas9 c-Human viruses life cycle
d- Stages of rolling circle replication (RCR) e-Production of subunit vaccine



Final Exam. For the 3rd level students (Microbiology) –26 Jan., /2024.
Subject: Biology of Aquatic Fungi (361 B) Maximum Allowed Time: 135 Min.

Answer The Following Questions:- (Note: 5 pages should be considered)

Q.1: Compare BRIEFLY between each of the followings:- (8 Marks)

1	Aero-aquatic hyphomycetes	Terrestrial-aquatic hyphomycetes
2	Community	Ecosystem
3	Intraspecific competition	Interspecific competition
4	Mutualism	Synergism

Q.2: Write Briefly on TWO ONLY of the following:-

(4 Marks)

1- Potential counter-adaptations by fungi may involve hiding from invertebrates:

2- Mycoremediation:

3- Interrelationship between aquatic fungi and stream invertebrates:

Q.3: Circle the correct answer for 5 only (Give the fit word if it is missing):- (5 Marks)

- 1- Habitat focuses on how the environment impacts the organism while the term _____ focuses on how the organism impacts the environment.
a. Guilds. b. Intraspecific competition. c- Mutualism. d. Antagonism. e- None of all.
- 2- The association of organisms that live together and that exhibit well-defined nutritional or behavioral interrelationships.
a. Communities. b. Ecosystems. c. Biodiversity. d. wetland. e- All of the above
- 3- An aquatic fungus which could be used as biocontrol agent for nematode:-
a. *Coelomomyces*. b. *Olpidium*. c. *Aphanomyces*. d. *Pythium*. e. None of all.
- 4- The physical location in the environment to which an organism has adapted
a. Migrants. b. Mesosomes. c. Thermocline layer. d. lotic habitat. e. None of all.
- 5- The organisms which feed on a variety of food sources.
a. Parasites. b. Saprophytes. c. Pathogens. d. Synergism. e. None of all.
- 6- 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.
a. *Olpidiosis*. b. *Aphanomyces*. c. *Alatospora*. d. *Plasmodiophora*. e. None of all.

Q.4: Mark with a tick (✓) for the correct or (X) for the wrong statements of FIVE ONLY of the followings (Correct the wrongs):- (5 Marks)

- 1- The appearance of cotton -like, white to grey growth on the skin, gills, fins and eyes or eggs of fish is main clinical signs for fish diseases caused by *Plasmodiophora brassicae*. ()
- 2- The partially adapted fungi are able to maintain their biomass and are capable of sporulating in the water as substrates and nutrients become available. ()
- 3- Neutralism 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. ()
- 4- The metabolically related populations of fungi that exhibit similar habitat requirements and that respond in a similar way to changes in their aquatic environment are known as habitat. ()

5- Rumen fungi are obligate anaerobes, biflagellated zoosporic fungi and essential for cellulose breakdown in feed. ()

6- The adaptability of Ascomyceteous fungi for water habitat is mainly attributed to their pigments. ()

5: Give the scientific term which is related to TEN ONLY of the following (Put your answers in the next table):- (10 Marks)

- 1- Aquatic organisms that provide the fundamental energy source; only organisms that can produce organic compounds by assimilating inorganic carbon from the atmosphere.
- 2- Group of metabolically related organisms that exhibit similar habitat requirements and that respond in a similar way to changes in their environment.
- 3- Description of certain aquatic habitat which should be considered in any sampling procedure and deals with depth, dimension, geology of shores, sediment distribution, currents, inflow and outflow of water, etc.
- 4- A natural aquatic environment which is lacking a continuous flow of water.
- 5- Variation of life forms, genera and species in an aquatic habitat.
- 6- The community which held together by complex interactions between the biotic and abiotic factors in a given water area.
- 7- The interaction between two different aquatic fungi at which one member benefits while the other does not benefit nor is it harmed.
- 8- It is a biological phenomenon by which an aquatic fungus produces one or more biochemicals that either positively or negatively influence the growth, survival, and reproduction of other organisms.
- 9- Aquatic fungi that move between aquatic and extra-aquatic habitats in haphazard rather than regular.
- 10- The buffer zone between the warmest and coolest layers in aquatic habitat which ordinarily prevents the mixing of the two layers.
- 11- Aquatic fungi that combat to capture of resources which have previously been captured by other organisms

(Give your answers in the following table):-

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

6: Give the organism (s) name which is related to THREE ONLY:- (3 Marks)

- A chytrid-infected frog causing chytridiomycosis and population declines worldwide.
()
- A zoosporic fungus that attacks nematode eggs. ()
- Gill rot disease of fish ()
- Zoosporic fungi which may be among the main reasons for the disintegration of a water blooms.
()

5- Pythiomycosis for human. (.....)

(6 Marks)

Q.7: Define Briefly TWO ONLY of the Following:-

1- Mycoloop:

2- Anaerobic aquatic fungi and its importance:

3- Transient fungi:

Q.8: Give ONLY ONE reason for each the following:-

(4 Marks)

1- The palatability of falling leaves and detritus which are colonized by aquatic fungi for aquatic invertebrates:-

2- Superiority and predominance of aquatic hyphomycetes in aquatic ecosystem rather than terrestrial fungi and bacteria:-

Q.9: Write Briefly (with illustration whenever possible) on THREE ONLY of the following:-

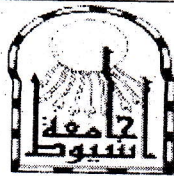
(6 Marks)

1- Adaptation of Aquatic Ascomycetes for water ecosystem:

[illegible][illegible]

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Prof. Abdel-Raouf Khallil



Answer the following questions (50 marks)

1- Select the correct answer in the following

10 marks

- | | | | | |
|---|-----------------------|------------------------|----------------------|--------------------|
| 1-H ₂ S toxin produced by | a- <i>Shigella</i> | b- <i>Chlostridium</i> | c- <i>Vibrio</i> | d- <i>Bacillus</i> |
| 2-Most marine toxins produced by | a-Cyanophyta | b-Pyrrophyta | c-Chrysophyta | d-Phaeophyta |
| 3-Fresh water toxins produced by | a-Cyanophyta | b-Pyrrophyta | c-Chrysophyta | d-Phaeophyta |
| 4-Cyanobacteria hepatotoxin contains | a- anatoxin | b- nodularin | c- botulinus | d- hemolysin |
| 5-Tenuazonic acid produced by | a- <i>Aspergillus</i> | b- <i>Penicillium</i> | c- <i>Alternaria</i> | d- <i>Fusarium</i> |
| 6-Aflatoxicol produced from B ₁ by | a-hydroxylation | b-epoxidation | c-reduction | d-oxidation |
| 7-Maximum limit of Ergot in food is | a-0.5 % | b-0.1 % | c-0.05 % | d-0.01 % |
| 8-Carcinogenesis didn't cause by | a-aflatoxin | b-zearalenone | c-citrinin | d-patulin |
| 9-Oesophageal-cancer caused by | a-aflatoxin | b-fumonisin | c-alternariol | d-all of them |
| 10-Nephrotoxicity caused by | a- alternariol | b-zearalenone | c- ochratoxin | d- patulin |

2- Write on 3 only of the following

15 marks

- a-Classification of mycotoxins on basis of their precursors.
- b-Types of bacterial toxins and their producing species.
- c-Steratiges for pre-harvest prevention of mycotoxins.
- d-Control of algal toxins.

3-Explain 3 only of the following:

15 marks

- a-Toxicity of shellfish toxins.
- b-Types, production and uses of vaccines.
- c-Cholera toxin mode of action.
- d-Metabolism of aflatoxin in liver.

4- Compare in table between 2 only of the following

10 marks

- a-Diseases caused by protein bacterial toxins.
- b-Mode of action of Algal toxins.
- c-Acute mycotoxicoses in body systems.

Good luck

Prof. Dr. Hassan A. H. Hasaan



Assiut University - Faculty of Science
Botany & Microbiology Department



جامعة أسيوط - كلية العلوم
قسم النبات والميكروبيولوجي

Stress Physiology

Time: 2 Hours

313 BT

First Term Examination 2023 – 2024

3rd Level: Biotechnology

Exam Papers: Three

Answer the following questions:

Q1- Read carefully and choose the correct answer of twenty only: .. (20 marks)

- 1- Stress is not commonly a physical force affecting the organism in biological systems.
a) many (b) single (c) two (d) three
- 2- is the ability of the host plant to maintain its growth despite the infection or pest attack.
a) Stress (b) Tolerance (c) Resistance (d) None of the previous
- 3- The term is often used to describe a readily diffusible molecule involved in conveying information from an extracellular source to the principal target enzymes within the cell.
a) receptor (b) second messenger (c) stress (d) tolerance
- 4- can be perceived by protein receptors or through changes in membrane potential.
a) Receptors (b) Signals (c) Second messenger (d) Channels
- 5- Two of the signal transduction pathways found in plant cells involve:
a) Ca + Proteins (b) Ca + Protein kinases (c) K + Protein kinases (d) Mg + Protein
- 6- light interacts in regulating plant development.
a) Blue & green (b) Blue & red (c) Green & red (d) Green & yellow
- 7- In submerged soils at low redox potential, large amounts of may be formed.
a) CO₂ (b) CH₄ (c) CO (d) O₂
- 8- is often a major constraint in the waterlogged environments.
a) Element deficiency (b) Element toxicity (c) O₂ toxicity (d) CO₂ toxicity
- 9- acts as a root signal, inducing epinastic responses to flooding in the leaves of herbaceous plants.
a) Auxin (b) Ethylene (c) Strigolactone (d) Gibberellin

- 10- Growth in a wetland environment promotes the formation of a thickened root hypodermis to reduce loss to the anaerobic soil.**
- a) CO (b) O₂ (c) NO (d) CH₄
- 11- Drought is the ability of a plant to withstand water deficit with low tissue water potential.**
- a) avoidance (b) tolerance (c) scape (d) None of the previous
- 12- Numerous signals induce stomatal closure; the best-known one is**
- a) IAA (b) ABA (c) GA (d) SA
- 13- A second parameter frequently used to assess water status.**
- a) RWC (b) WP (c) TP (d) GP
- 14- Compatible solutes include, except for.**
- a) proteins (b) proline (c) glycine betaine (d) oligosaccharides
- 15- soils are abundant in semiarid and arid regions.**
- a) Saline (b) Flooded (c) Wet (d) all of the previous
- 16- In plants exposed to high salinity levels for short periods,, and long periodsare the principal constraint.**
- a) water deficit, ion toxicity (b) water excess, ion toxicity
(c) water excess, ion deficit (d) water deficit, ion deficit
- 17- Under salinity, a higher respiration rate requirement presumably results from:**
- a) The compartmentation of ions (b) Ion secretion
(c) The repair of cellular damage (d) All of the previous
- 18- in which the plant cells are killed. ✓**
- a) Necrotrophy (b) Biotrophy (c) Hemibiotrophy (d) None of the previous
- 19- Phytopathogenic specialize in colonizing the apoplast to cause rots, spots, vascular wilts, cankers, and blights.**
- a) bacteria (b) fungi (c) viruses (d) nematodes
- 20- Plant never crosses the plasma membrane of the infected cell.**
- a) viruses (b) bacteria (c) fungi (d) nematodes
- 21- All parasitic species are obligate biotrophs, and all possess a hollow feeding style capable of penetrating plant cell walls.**
- a) nematode (b) viruses (c) bacteria (d) arthropods
- 22- Feeding not only damages plants directly but also facilitates colonization by viral, bacterial, and fungal pathogens**
- a) arthropods (b) viruses (c) bacteria (d) fungi

Q2- Put (✓) in front of the correct sentence and (X) in front of the wrong sentence and correct it (Answer ten only): (20 marks)

- 1- Stress is usually defined as an external factor that exerts an advantageous influence on the plant.
- 2- Many signals interact antagonistically with each other to produce the final response.
- 3- To initiate transduction, a signal must first be non-sensed by a receptor.
- 4- Auxin triggers epinasty in some flood-sensitive species.
- 5- When free CO₂ is depleted, nitrate is used by some soil microorganisms as an alternative electron acceptor in respiration.
- 6- The signal from flooded roots for enhanced shoot elongation is the gaseous phytohormone gibberellin.
- 7- Stress tolerance mechanisms begin with stress perception, followed by the formation of gene products involved in cell protection and repair.
- 8- The hormone ABA plays an important role in plant response to water deficit.
- 9- Glycophytes are native to saline soils and complete their life cycles in that environment.
- 10- With a sudden increase in salinity, osmotic adjustment is achieved first by increases in tissue water content.
- 11- Heavy infestations of sap-sucking insects cause chronic shortages of photosynthates and thus severely reduce plant growth potential.
- 12- Elicitors are commonly used for compounds stimulating plant defense of any type.

Q3- Compare between five of the following: (10 marks)

- 1- External and internal signals.
- 2- Ethanol and lactate pathways in waterlogged soil.
- 3- Compatible solutes and aquaporins play roles in osmotic adjustment.
- 4- Phytohormones and oxidative stress under the effect of salinity.
- 5- Biotrophy and hemibiotrophy fungi.
- 6- Constitutive and induced defenses - Structures.
- 7- Toxicity of zinc and copper.

[illegible]



No. of questions: 3

No. of Pages: 3

Answer the following questions

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

(15 marks, 0.5 mark each)

The medicinal herbs have always been considered as folk medicine	()
Ethnobotanical information is leading to the discovery of novel phytoplankton	()
Ibn Sina wrote a section in his book of medicine named Canon of Medicine	()
The active principles differ from plant to plant due to their biodiversity	()
<i>Apium graveolens</i> is among the plants that used for treatment of toothache	()
Seeds of <i>Solenostemma arghel</i> are used as a diuretic	()
Fennel is a flowering plant species belonging to family Brassicaceae	()
<i>Matricaria chamomila</i> is a medicinal plant used for psoriasis and aprains	()
Fruits of <i>Cassia fistula</i> and <i>Senna italica</i> are used as rubefacient	()
The volatile of <i>Chenopodium ambrosoides</i> is used as an anthelmintic	()
<i>Ricinus communis</i> seeds contain about 50 % oil, used as a strong purgative	()
<i>Trigonella foenum-graecum</i> fruits is used as an anti-cholesterolemic	()
<i>Mentha viridis</i> oil is a domestic plant used for chest pains and tooth whiten	()
<i>Thymus serpyllum</i> oil is a domestic plant used as expectorant and deodorant	()
<i>Hibiscus sabdariffa</i> is used as herbal tea, expectorant and deodorant	()
Myrtaceae is characterized by numerous stamens and inferior ovary	()
Myristicaceae is characterized by lactiferous, milky or watery latex	()
<i>Nigella sativa</i> is a medicinal plant belonging to family Ranunculaceae	()
<i>Atropa belladonna</i> and <i>Nicotiana tabacum</i> are belonging to family Atropaceae	()
Cuminum is said to help in treatment of common cold, when added to hot milk	()
Anise essential oil is used to treat scabies	()
Leaves of <i>Pimpinella anisum</i> are used in indigenous medicine for liver and kidney	()
<i>Eclipta prostrata</i> is a medicinal plant used for Snakebites	()
Family Chenopodiaceae is characterized by petaloid tepals	()
Trade in the drugs obtained from wild plants is very common everywhere	()
Poaceae is the first family recognized by botanists and subjected to systematic	()
Seeds of <i>Carum carvi</i> is widely used as a culinary spice	()
Carpusculum and caudicle is parts of the pollinia of Asclepiadaceae	()
The papilionaceous corolla is characteristic to Asclepiadaceae	()
Family Lythraceae is characterized by bilabiate corolla	()

question: - Choose the correct answer, put your answer in the table: -

(15 marks, 0.5 mark each)

- (1) The ancient Egypt reported some pharmacopial plants on:-
 - a. Ebers walls
 - b. colored papers
 - c. Ebers papayrus
 - d. all the preceding
- (2) In some parts of Egypt, as well as other Arab countries, the healer is known as:-
 - a. hakim
 - b. experience
 - c. ethnobotanic
 - d. non of the preceding
- (3) The modern development of phytotherapy requires the integration of:-
 - a. ethnobotany
 - b. agrotechnical
 - c. marketing
 - d. all of the preceding
- (4) Abu Bakr ar-Razi produced 20 volumes of therapeutics named
 - a. Canon of Medicine
 - b. Simple drugs
 - c. Continens
 - d. Materia Medica
- (5) The medicinal book named *Minhag ad-Dukkan* was wrote by
 - a. Ibn al-Baitar
 - b. Abu Ga'far al-Ghafiqi
 - c. Dawud Al-Antaki
 - d. Dawud Abi Nasir
- (6) Herbalism, also known as
 - a. phytotherapy
 - b. herbology
 - c. herbal medicine
 - d. all of the preceding
- (7) Flowers of the family Apiaceae are small, arranged in
 - a. capitula
 - b. corymbs
 - c. umbels
 - d. scorpioides
- (8) Meladinine is used for leukemia and extracted from
 - a. *Ammi majus*
 - b. *Cuminum cuminum*
 - c. *Artemisia judaica*
 - d. all of the preceding
- (9) *Anethum graveolens* (الشبث) is a herb used for
 - a. Snakebites
 - b. skin diseases
 - c. Lithontripic
 - d. culinary
- (10) Seeds of are one of the key plants used to flavour gin
 - a. *Coriandrum sativum*
 - b. *Carum carvi*
 - c. *Ammi majus*
 - d. all of the preceding
- (11) Leaf juice of is a used for blepharitis and conjunctivitis.
 - a. *Petroselinum sativum*
 - b. *Carum carvi*
 - c. *Ammi majus*
 - d. *Apium graveolens*
- (12) *Artemisia judaica* is a medicinal plant belonging to the family
 - a. Asteraceae
 - b. Asclepiadaceae
 - c. Brassicaceae
 - d. Apiaceae
- (13) Hebanox is a drug extracted from *Silybum marianum* and used for :-
 - a. Snakebites
 - b. skin diseases
 - c. liver diseases
 - d. non of the preceding
- (14) *Sinapis nigra* is a medicinal plant used for
 - a. appetizer
 - b. stimulant
 - c. rubefacient
 - d. all of the preceding
- (15) Fruit pulp of plant is rich in tartaric and citric acids, high amount of vitamin C
 - a. *Tamarindus indica*
 - b. *Sinaps nigra*
 - c. *Pimpinella anisum*
 - d. *Solenostemma arghel*

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- (16) its fruits is used as an anti-rheumatic cure in traditional medicine
 a. *Citrullus colocynthis* b. *Tamarindus indica*
 c. *Sinaps nigra* d. *Chenopodium ambrosoides*
- (17) Family Euphorbiaceae is characterized by
 a. compound leaves b. cythium
 c. inferior ovary d. all of the preceding
- (18) *Glycyrrhiza glabra* is a medicinal plant used as
 a. cough syrups b. expectorant
 c. tooth powders d. all of the preceding
- (19) *Origanum majorana* is a medicinal plant used for
 a. cough syrups b. antispasmodic
 c. tooth powders d. all of the preceding
- (20) its fruits and leaves is used in Arab countries as a natural pigments
 a. *Lawsonia inermis* b. *Tamarindus indica*
 c. *Sinaps nigra* d. *Origanum majorana*
- (21) *Myristica fragrans* is a domestic plant used for
 a. stimulant b. spices
 c. anti-diarrhoea d. all of the preceding
- (22) its buds have a warming effect easing away stress, anxiety and tension
 a. *Myristica fragrans* b. *Tamarindus indica*
 c. *Lawsonia inermis* d. *Eugenia caryophyllata*
- (23) *Papaver somniferum* is is a domestic plant used for
 a. anti-infectious b. regulate thyroid
 c. addictive drug d. all of the preceding
- (24) *Cymbopogon proximus* is a medicinal plant belonging to family
 a. Myristicaceae b. Poaceae
 c. Myrtaceae d. Lamiaceae
- (25) *Zizyphus sativa* is a domestic plant used for
 a. anti-infectious b. regulate thyroid
 c. antidote d. all of the preceding
- (26) *Salvadora persica* is a domestic plant used for
 a. toothbrush b. anti-cancer
 c. Asthma d. all of the preceding
- (27) *Verbascum thapsus* is a domestic plant used for
 a. hemorrhoids b. anti-cancer
 c. Asthma d. all of the preceding
- (28) *Hyoscyamus muticus* is a domestic plant used for
 a. hemorrhoids b. anti-cancer
 c. narcotic d. Asthma
- (29) After childbirth, women used hot drinks of its powdered as a tonic and lactagogue.
 a. *Zingber officinale* b. *Atropa belladonna*
 c. *Nicotiana tabacum* d. *Glossostemon bruguieri*
- (30) widely used for making ginger tea or as a spice or food additive.
 a. *Datura stramonium* b. *Atropa belladonna*
 c. *Nicotiana tabacum* d. *Zingber officinale*

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Third question: - (20 marks)

Write short notes about the following plants and their uses as a domestic plant:-

- a. *Ammi majus*
 - b. *Solenostemma argel*
 - c. *Matricaria chamomile*
 - d. *Tamarindus indica*
-

Best Wishes ...

Prof. Dr. Momen Zareh & Dr. Mona Hassan



Assiut University - Faculty of Science
Botany & Microbiology Department



جامعة أسيوط - كلية العلوم
قسم النبات والميكروبيولوجي

Mineral Nutrition

Time: 2 Hours

351 B

First Term Examination 2023 – 2024

3rd Level: Botany and Chemistry

Exam Papers: Three

Answer the following questions:

Q1- Read carefully and choose the correct answer of twenty only: .. (20 marks)

- 1- Compared with other liquids, water requires a relatively energy input to raise its temperature.
a) low (b) high (c) equal (d) small
- 2- is the attraction of water to a cell wall.
a) Cohesion (b) Adhesion (c) Surface tension (d) Turgor pressure
- 3- is the concerted movement of groups of molecules in masse, most often in response to a pressure gradient.
a) Osmosis (b) Bulk flow (c) Diffusion (d) Imbibition
- 4- principal functions of membrane proteins.
a) Two (b) Six (c) Four (d) Five
- 5- Stoma when its guard cells gain K^+ and water from surrounding cells.
a) flaccid (b) opens (c) closes (d) none of the previous
- 6- Proteins that serve as ion channels are always:
a) peripheral (b) integral (c) anchored (d) none of the previous
- 7- Ions move from cell to cell through the entire plant by simple diffusion through the.....
a) apoplast (b) symplast (c) osmosis (d) none of the previous
- 8- The plant cannot complete its life cycle without element.
a) macro- (b) essential (c) beneficial (d) micro-
- 9- The presence of the allows the plant to maintain a higher ionic concentration in the xylem than exists in the soil water surrounding the roots.
a) imbibition (b) Casparian strip (c) osmosis (d) diffusion
- 10- There are chemical elements that are required for all plants.
a) three (b) seventeen (c) fourteen (d) fifty

11- Nutrient functions in plants; strengthens cell walls is:

- a) Fe (b) Ca (c) K (d) P

12- solution plays an important role in carbonic acid exchange theory.

- a) Root (b) Soil (c) Shoot (d) Leaf

13- Nitrite is immediately transported to and

- a) plastids and mitochondria (b) plastids and chloroplasts
(c) plastids and cytoplasm (d) plastids and glyoxysomes

14- dissipates transmembrane proton gradients.

- a) NO_2^- (b) NH_4^+ (c) NO_3^- (d) NaCl

15- Signals that can open or close gates include

- a) voltage changes (b) hormone binding (c) light (d) all of the previous

16- Nitrate in the soil solution is readily absorbed by:

- a) antiporter (b) carrier (c) channel (d) symporter

17- When cyanide inhibits electrogenic ion transport, the pH of the external medium.....

- a) decreases (b) no changes (c) no differences (d) increases

18- is needed for the regeneration of phosphoenol pyruvate from pyruvate.

- a) K (b) Ca (c) Mg (d) Na

19- All are electrogenic pumps except

- a) H^+ -ATPase (b) V-ATPase (c) H^+ -PPase (d) ATP-binding cassette

20- serves as an electron donor to the Fe protein, which hydrolyzes ATP and reduces the MoFe protein.

- a) NADH (b) NADPH (c) FADH (d) Ferredoxin

21- ATP sulfurylase has two forms: The major form is found in, and a minor is in the

- a) plastids, mitochondria (b) glyoxysomes, cytoplasm
(c) plastids, chloroplasts (d) plastids, cytoplasm

Q2- Put (✓) in front of the correct sentence and (X) in front of the wrong sentence and correct it (Answer ten only): (20 marks)

- 1- Transpiration increases water potential in leaves.
- 2- Osmosis is the movement of water molecules across a selectively permeable membrane from a region of low water concentration to high.
- 3- At night, the guard cells close the stomata to increase water evaporation.

