جامعة أسيوط – كلية العلوم – قسم النبات والميكروبيولوجي

إمتحان الفصل الدراسي الأول (2021/2020م)

مقررالنبات العام (100B) - لطلاب المستوى الأول بكلية العلوم

الزمن: ساعتان | الدرجة: 50 درجة

الإمتحان في أربع صفحات

اختر الإجابة الصحيحة (50 × 1 = 50 درجة)

أولا: المملكة النباتية

1) يعتبر جنس.....من أمثلة البكتيريا التكافلية التي تعيش في علاقة تبادل منفعة مع كائنات أخرى
a) *Acetobacter* b) *Rhizobium* c) *Staphylococcus* d) *Thiobacillus*

2) تحتوي الطحالب الخضراء المزرقة على الأصباغ الآتية ما عدا.....
a) كلوروفيل أ b) كلوروفيل ب c) فيكواريثرين d) فيكوسيانين

3) أي من الصفات التالية لا توجد في فطر ***Aspergillus*** ؟
a) حامل كونيدي مقسم b) حامل كونيدي متفرع c) خيوط فطرية غير مقسمة d) كل ما سبق

4) المكون الرئيسى للتركيب الكيميائى للفيروس هو.....
a) النيكليوبروتين b) الكربوهيدرات c) البيبتيدوجليكان d) كل ما سبق

5) تشترك الطحالب الخضراء المزرقة مع البكتيريا في كل مما يأتي ما عدا.....
a) أنوية بدائية b) التكاثر بالإنشطار c) وجود البيتيدوجليكان في الجدار d) وجود كلوروفيل أ

6) يختلف فطر الخميرة عن البكتيريا في كونة.....
a) بدائي النواة b) حقيقي النواة c) متعدد الخلايا d) وحيد الخلية

7) ويتركب السوط البكتيرى من وحدات بروتينية تسمى.....
a) Flagellin b) Flagella c) Pilli d) Pectin

8) توجد البقعة العينية في جميع ما يلي ماعدا.....
a) *Spirogyra* b) *Chlamydomonas* c) *Pandorina* d) *Euglena*

9) أثناء التكاثر الجنسي في بعض الفطريات الزقية تتجمع الأكياس الجرثومية داخل تركيب خاص يسمى ب .....
a) الجسم الحجري ب) الحافظة الجرثومية ج) الجسم الثمري د) ليس مما سبق

10) تتميز الفيروسات بأنها.....
a) تمر من خلال المرشحات البكتيرية b) تعيش خارج الخلية الحية
c) تعيش على الأوساط الصناعية d) باحتوائها على عضيات

11) التكاثر الجنسي في ***Chlamydomonas*** يكون من النوع .....
a) متشابه الأمشاج b) متباين الأمشاج c) البيضي d) ليس مما سبق

12) الباندورينا مستعمرة طحلبية تتكون من.....
a) 8 خلية b) 64 خلية c) 128 خلية d) 4 خلية

13) تفرز بعض البكتريا مواد عضوية لزجة خارج الخلية تعرف ب.....

a) الكبسولة b) الاسواط c) الاصباغ d) الاهداب

14) يتركب جدار الطحالب الخضراء من مادة.....

a) السيليلوز b) الهيميسليلوز c) البيتيدوجليكان d) النشا

15) من الصفات المميزة لفطر *Rhizopus* .....

a) تكوين أشباه جذور b) الجراثيم اللاجنسية الحافظية

c) تتكون جرثومة زيجوتية من التكاثر الجنسي d) كل مما سبق

16) عديد السكريات الدهنية Lipopolysaccharides توجد في طبقات جدار .....

a) البكتيريا الموجبة للجرام b) البكتريا السالبة للجرام c) الفطريات الزقية d) الفطريات البازيدية

17) يتكاثر *Nostoc* بجميع الطرق الآتية ماعدا.....

a) تقطع الخيوط b) الانقسام الثنائي c) التبرعم d) التكاثر بتكوين الجراثيم

18) يتميز طحلب *Pandorina* بأنه يحتوي على بلاستيدة .....الشكل.

a) حلزونية b) نجمية c) كأسية d) ليس مما سبق

19) من وظائف ..... انها تقوم بعملية التكاثر اللاجنسي.

a) الأنثريدات b) الأوجونات c) الجونيدات d) كل ما سبق

20) يتكاثر فطر *Penicillium* لاجنسيا عن طريق تكوين.....

a) الجراثيم البيضية b) الكونيدات c) الجراثيم المتحركة d) الجراثيم الزيجوتية

21) يعتبر .....من أمثلة الطحالب المتحركة بالأسواط

a) *Chlamydomonas* b) *Euglena* c) *Volvox* d) كل ما سبق

22) الخيوط الفطرية تكون في صورة مدمج خلوي في حالة.....

a) الفطريات الزيجوتية b) الفطريات الزقية c) الفطريات البازيدية d) كل ما سبق

23) يتكاثر فطر الخميرة *Saccharomyces* لا جنسيا عن طريق.....

a) التبرعم b) الانشطار c) كلاهما d) ليس مما سبق

24) كل الفطريات تعتبر.....

a) غير ذاتية التغذية b) مترممة c) متطفلة d) متكافلة

25) يتشابه *Euglena* مع الطحالب في.....

a) طريقة التكاثر (ب) عدم احتوائها علي جدار خلوي (ج) وجود كلوروفيل أ (د) كل ما سبق

ثانيا: تشريح النبات

26) كربونات الكالسيوم هى أحد النواتج الثانوية لعمليات التحول الغذائى وتوجد فى صورة.....

a) خلايا حجرية b) بلورات مفردة c) حويصلة حجرية d) بلورات نجمية

27) تتكون الصفيحة الوسطى في الخلية النباتية من.....

a) كيتين b) بكتين c) سيليلوز d) كل ما سبق

28) يحتوي نشا القمح على سرة.....

a) مركزية b) طرفية c) متفرعة d) ليس مما سبق

29) يختلف الحمض النووى RNA عن DNA بإحتوائه على القاعدة النيتروجينية .....

a) الأدنيين b) الجوانين c) اليوراسيل d) سيتوسين

30) تتميز الالياف عن الخلايا الحجرية بأنها تنشأ من أصل .....

a) ميرستيمى b) بارنشيمى c) كولنشيمى d) إسكلرنشيمي

31) تتكون البلورة النجمية من.....

a) كربونات الكالسيوم b) أوكسالات الكالسيوم c) دهون d) كل ما سبق

32) أكثر أنواع الأنسجة الأساسية انتشارا في النبات هو.....

a) النسيج البارانشيمي b) النسيج الكولنشيمي c) النسيج الإسكلرنشيمي d) نسيج البشرة

33) أي من الأنسجة التالية يحتوي على بلاستيدات خضراء؟

a) النسيج العمادي b) النسيج الكلورنشيمي c) الخلايا الحارسة d) كل ما سبق

34) تتميز الخلايا المرستيمية بكل مما يأتي ما عدا.....

a) لها القدرة على الإنقسام b) تحتوي على بلاستيدات أولية

c) توجد بينها فراغات d) تختلف من حيث النشأة

35) أي من الأنسجة التالية لا يحتوي على لجنين؟

a) النسيج البارانشيمي b) النسيج الكولنشيمي c) النسيج الكلورنشيمي d) كل ما سبق

36) .....يعتبر نسيج حي له وظيفة تدعيمية

a) النسيج البارانشيمي b) النسيج الكولنشيمي c) النسيج الإسكلرنشيمي d) (b) و (c)

37) توجد البرانشيمه الهوائية في.....

a) النباتات الصحراوية b) النباتات المائية c) النباتات البدائية d) ليس مما سبق

38) تكون الخلايا الحارسة في مستوى سطح البشرة في حالة.....

a) الثغر الكلوي b) الثغر الصولجاني c) الثغر الغائر d) (a) و (b)

39) يساعد المرستيم الجانبي في.....

a) زيادة طول النبات b) زيادة سمك النبات c) تكوين الأفرع الجانبية d) كل ما سبق

40) .....عبارة عن قنوات طويلة نشأت من التحام طولى لعدد كبير من الخلايا الإنشائية ذابت الجدر المستعرضة الفاصلة بينها ويقوم بوظيفة التوصيل فى النبات.

a) الأنابيب الغربالية b) القصيبات c) الأوعية d) الخلايا المرافقة

41) يتميز نسيج الخشب بخاصية .....

a) الازدواج التشريحى b) الازدواج الوظيفى c) الليونة d) كل ما سبق

42)............ تعتبرمن أمثلة الغدد الخارجية وتكون موجودة بالنباتات آكلة الحشرات

a) الغدة الهاضمة b) الغدة الانقراضية c) الغدة الانفصالية d) الغدد اللبنية

43) يمكن تميز الجذور عن السيقان بان الحزم الوعائية فيها تكون..........

a) جانبية مفتوحة b) قطرية c) جانبية مغلقة d) مركزية

44) فى نباتات الفلقة الواحدة يتميز اللحاء ....

a) بتكوين بارنشيما اللحاء b) بعدم تكوين بارنشيما اللحاء c) بعدم تكوين خلايا مرافقة د) كل ما سبق

45) يغطي نسيج البشرة بطبقة من.................

a) السليلوز b) البكتين c) الكيوتيكل d) الكيتين

46) توجد خلايا المرور في ....

a) جذر نباتات ذوات الفلقة b) ساق نباتات الفلقة الواحدة
c) جذر نباتات الفلقتين d) ساق نباتات الفلقتين

47) تتميز سيقان الفلقتين بأن الحزم فيها تكون ....

a) جانبية مغلقة b) قطرية c) جانبية مفتوحة d) مركزية

48) في سيقان الفلقة الواحدة يكون النسيج الاساسى ....

a) متميز إلى قشرة ونخاع b) غير متميز إلى قشرة ونخاع
c) متميز إلى قشرة ونخاع وأشعة نخاعية d) لا يوجد نسيج أساسي

49) تتميز نباتات الفلقة الواحدة بان خلايا اللحاء فيها تكون............

a) إبتدائى منتظم b) إبتدائى غير منتظم c) ثانوى منتظم d) ثانوي غير منتظم

50) توجد النقرة المتفرعة في...................

a) الألياف b) الخلايا الحجرية c) القصيبات d) الحويصلة الحجرية

مع تمنياتنا بالنجاح والتوفيق,,,,,,,,,,,,,,,,,,,,,,,,,,,

أ.د/ سناء محمد فهمي
د/ أمل وليم دانيال
د/ محمد جمعة
د/ منى حسن

Assiut University
Faculty of Science
Botany&Microbiology Department

Date: March14, 2021
The time allowed: 2 hours
Total mark: _____
50

First Semester- Final Examination **Subject: Course B 271 (Bacteriology)**
Students: (Microbiology; Chemistry and Microbiology sections)
Shade (blur) the correct answer in provided bubble sheet using a blue ballpoint pen
ظلل (اطمس) الاجابه الصحيحه فى نموذج الاجابه مستخدما قلم جاف ازرق

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1 Which of the following is not affected by Penicillin?
a. *Bacillus* b. *Diplococcus* C. *Clostridium* d. *Mycoplasma*

2. Which of the following lacked in Gram-positive bacteria?
a. Mucopeptide b. Plasma membrane c. Outer membrane d. Ribsomes

3 Which one of the following is used by *Nitrobacter* as their electron source?
a. NH_4 b. NO_2 c. NO_3 d. H_2S

4 Which of the following is correct for membranous infolding in bacteria that initiate DNA replication?
a. Nucleosome b. Carboxysome c. Magnetosome d. Mesosomes

5 Which of the following is not a characteristic of certain thermophilic bacteria?
a. Grow at 45-70° b. Unsaturated fatty acid c. Saturated fatty acids d. Peptidoglycan

6 Which one of the following antibiotic inhibited lipid phosphatase, preventing the release of murine from its lipid carrier?
a. Cycloserine b. Bacteriocin c. Penicillin d.Vancomycine

7 Which of the following is a characteristic of Gram-negative bacterium?
a. Ribosomes b. Peptidoglycan c. Lipopolysaccharide d. Plasma membrane

8 Which of the following antibiotic couples with UDP-NAG and blocks the formation UDP-NAM during cell wall synthesis?
a. Cycloserine b. Vancomycin c. Phosphonmycine d. Tetracycline

9 Which phase in a growth curve that the bacteria are checking and adjusting to their environment?
a. Stationary phase b. Log phase c. Decline phase d. Lag phase

10 Which bacterial structure resembles the mitochondrion most closed in function?
a. Pili b. Plasmid c. Plasma membrane d. Ribosomes

11 An organism that expends energy to grow in a habitat with a low water activity in order to maintain internal solute concentrations to retain water is?
a. Osmophile b. Acidophile c. Alkalophile d. Aerophiles

12 Which of the following is causal agent of dental caries?

a. *Streptoc. lactis* b. *Streptoc. mutans* c. *Streptoc. pyogenes* d. *Streptoc. pneumonia*

13 Which of the following is caused by *Actinomyces bovis* ?

a. Lumpy jaw b. Syphilis c. Tuberculosis d. Tetanus

14 The sequence of the structural genes in the lac operon is.....

a. lacA-lacZ-lacY b. lacA-lacY-lacZ c. lacZ-lacA-lacY d. lacZ-lacY-lacA

15 In Lac-operon, the gene product of LacA gene is.....

a. Permease b. galactosidase c. transacetylase d. isomerase

16 Rhizobium species belonges to which of the following classes

a. Photoautotrophs b. Photoheterotrophs c. Chemoautotrophs d. Chemoheterotrophs

17 The uptake of DNA fragments from surroundings by a bacterium is termed as.....

a. Transduction b. transformation c. conjugation d. mutation

18 The covalent bond which links the cell walls of gram-positive bacteria containing two modified sugars – N – acetylmuramic acid (NAM) and N-acetyl glucosamine (NAG) is.....

a. α -1,4-glycosidic b. β 1,4-glycosidic c. α 1,6-glycosidic d. β 1,6-glycosidic

19 The iodine used in Gram staining is serves as.....

a. Chelator b. cofactor c. mordant d. coenzyme

20 Which of the following pathogens causes Leprosy in humans?

a. *Bacillus* b. *Vibrio* c *Trepenoma* d. *Mycobacterium*

21 Which of the following enzyme that catalyzes cross- linking of peptidoglycan chains of the bacterial cell wall inhibited by Penicillin?

a. transglycolase b. transpeptidase c ribonuclease d. enolpyruvyl transferase

22 Which of the following antibiotic block process of translation during protein synthesis?

a. Cephamycin b. Vancomycin c Tetracycline d. Erythromycin

23 The gap between cell wall and cell membrane is called?

a. Vacuole b. Matrix c Priplasmic space d. Intercellular space

24 Sulfa drug act as antimicrobial by inhibiting.....

a. Cell wall synthesis b. Protein synthesis c Membrane permeability d. Folate metabolites

25 The last step in synthesis of peptidoglycan is attachment of.....

a. a peptide to muramic acid | b. penicillin to a membrane protein | c two amino acids to form a cross-link | d. peptidoglycan to a membrane lipid

26 Swimming towards a chemical of bacteria is termed as.....

a. positive chemotaxis | b. negative chemotaxis | c phototaxis | d. magnetotaxis

27 Cell divided in three planes in an irregular pattern and remain in clumps is called.....

a. streptococci | b. staphylococci | c teteracocci | d. sarcinae

28 Which of the following organism has sterols in their cytoplasmic membrane?

a. *Bacillus* | b. *Clostridium* | c *Proteus* | d. *Mycoplasma*

29 The structural genes of lactose opern switched on when active repressor bind to .....

a. promoter | b. operator | c inducer | d. regulator

30 Pasteurization is heated at .....

a. 121°C for 15 min | b. 72°C for 15 sec | c 121°C for 60 min | d. 72°C for 60 min

31 During operon transcription, the site of DNA molecule at which RNA polymerase binds is called.....

a. promoter | b. operator | c regulator | d. enhancer

32 Which of the following organism has axial filaments?

a. *Sarcina* | b. *Neisseria* | c *Serratia* | d. *Spirocheaeta*

33 Which of the following is bind with erythromycin and block protein synthesis?

a. 30S subunit | b. 40S subunit | c 50S subunit | d. 60S subunit

34 Gas vesicles are produced in a variety of aquatic prokaryotes for the purpose of?

a. Storage of nitrogen | b. N_2 fixation | c CO_2 fixation | d. Buoyancy

35 Which of the following is best to sterilized heat labile solution?

a. Dry heat | b. autoclave | c Membrane filtration | d. Pasteurization

36 Which one of the following disapproved spontaneous generation theory?

a. Hippocrates | b. Fracastoro | c Robert Koch | d. Louis Pasteur

37 The typical termperature for an autoclave (operating) at 15 PSI pressure is .....

a. 121°C | b. 131 °C | c 141 °C | d. 151 °C

38 The term that refers to the destruction of vegetative pathogens on skin and living tissues is...

a. antisepsis | b. antiseptic | c disinfection | d. disinfectant

39 A certain bacteria that obtains its energy from the oxidation of ammonium and uses carbon dioxide as its carbon source would best be described as a / an?

a. Chemohetrotrophs b. Photoheterotrophs c Photoautotrophs d. Chemoautotroph

40 Which of following is function of Magnetosomes?

a. Buoyancy b. Gene expression c orientation d. food storage

41 The lowest temperature at which all bacteria in liquid culture will killed at 10 minutes is defined as.....

a. decimal reduction time b. thermal death time c thermal death point d. generation time

42. Wild type bacteria that can synthesize all necessary metabolites are known as..

a. auxotrophs b. phototrophs c prototrophs d. heterotrophs

43. The element that is required in trace amounts for the growth of bacteria is.....

a. potassium b. sodium c magnesium d. cobalt

44. Non-sulfur purple bacteria belongs to which of the following group?

a. photoautotrophs b. photoheterotrophs c chemolithotrophs d. chemohetrotrophs

45. Which of the following species is hydrogen oxidizing bacteria?

a. Clostridium *b. Thiobacillus* *c Nitrobacter* *d. Spherotilus*

46. Which of the following group undergo lethal oxidation when exposed to oxygen?

a. Facultative anaerobe b. Obligate anaerobe c Aerotolerant anaerobe d. Microaerophile

47. An organic nutrient essential to an organism's metabolism that cannot be synthesized itself is termed a/an:

a. trace element b. major elements c growth factor d. essential nutrient

48. Bacteria that cannot synthesize all necessary amino acids are called as.....

a. chemoheterotrophs b. auxotrophs c heterotrophs d. protrophs

49. In what type of bacterial culture medium listed below would blood never be a component?

a. Selective medium b. Differential medium c Complex medium d. Synthetic medium

50. Which one of the following is the not characteristic of endospore?

a. Resistance b.Nonrefractile c Dipicolinic acid d. Refractile

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GOOD LUCK

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Faculty of Science, Assiut University

Final Exam. For the 2rd level students - March 2021.

Subject: General Microbiology (291 B) **Maximum Allowed Time: 120 Min.**

Section (A) Mycology

Q.1: Choose the correct answer (A, B, C, D or E by shading and blurring in the provided bubble sheet):- **(13 Marks)**

1- Fungi which do not produce sexual spores where the sexual reproduction is lacking are known as

A-Myxomycota B- Zygomycotina C- Ascomycotina D- Mastigomycotina E- None of all

2- The highly resistant structures which are produced by some fungi under unfavorable conditions are referred as:-

A- Chlamydospores B- Cell wall C- Zoospores D- Antibiotics E- None of all.

3- Copulation of two motile, equal size and morphologically similar gametes is referred as

A- Anisogamy B- Oogamy C- Fragmentation D- Heterogamy E- None of all

4- The fungal cell is uniquely characterized by the presence of

A- Lomasomes B- Smooth endoplasmic reticulum C- Both a&b D- Cell wall E- None of all.

5- The naked multinucleate protoplasmic mass which represents the somatic structure in some slime molds (Myxomycota) is referred as:-

A- Pseudoplasmodium B- Plasmodium C- Basidiospores D- Mycotoxins E- None of all

6- Aggregation of large, erect and compact sporophores (compound conidiophores) are referred as

A- Pycnidia B- Synnema C- Acervulus D- Ascospores E- None of all

7- The endogenous sexual spores which are produced by some higher fungi are known as:-

A- Arthrospores B- Zygospores C- Cleistothecium D- Basidiospores E- None of all

8- The fungal thallus which is entirely converted into reproductive structures is known as:-

A- Heterothallic B- Saprophytic C- Endobiotic D- Eucarpic E- None of all

9- Mycorrhiza, a relationship between fungi and roots of higher plants is

A- Parasitic relationship B- Saprophytic relationship C- Epiphytic relationship

D- Pathogenic relationship E- None of all

10- The small particles which located in pockets between the cell wall and the plasma-membrane of the fungal cell are known as:-

A- Mesosomes B- Trichomes C- Zoospores D- Ascogonium E- None of all.

11- The copulation between two unequal size motile gametes is termed:-

A- Oogamy B- Somatogamy C- Spermatization D- Anisogamy E- None of all

12- The main sterol found in the plasma membrane of fungi is:-

A- Cholesterol B- Ergosterol C- Fatty acids D- Triglycerides E-None of all

13- Yeasts are unlike bacteria in being

A- Unicellular B- multicellular C- Prokaryotic D- Eukaryotic E- None of all

Q2. Choose (T) for True sentence or (F) for False sentence (By Shading and blurring in the provided bubble sheet):-- (12 Marks)

14- Thallospores are produced by transformation of pre-existing cells of the fungal thallus and are detached by decay of the hyphae, or disarticulation of the thallus.

15- Cleistothecia represent the special structures in which conidiophores may be produced singly or united in the base (free in the top) in saucer-shaped structure.

16- The fungal taxa related to Oomycetes produce zoospores with single posterior whiplash flagella.

17- The cell wall of slime molds (Myxomycota) is made of chitin.

18- The female gametes are represented by haploid nuclei within definite structures known as ascogonia in Zygomyceteous fungi.

19- Pseudoplasmodium is defined as the aggregation of unicellular, uninucleate naked amoeboid cells which represents the vegetative structure of some slime molds.

20- Imperfect (anamorphic) fungi produce thick-walled sexual spore known as zygospores.

21- Anteriorly tinsel uniflagellum is the characteristic features for Oomyceteous fungi.

22- The ostiolate flask-shaped conidiomata are known as perithecium.

23- Members of Basidiomycota produce sexual spores that are usually borne in groups of eight inside a sac-like structure.

24- Apothecium is a globose (spherical), completely closed fruit body with no special opening to the outside and contain scattered asci.

25- The asci arising singly and directly from zygote, the sex organs are absent and hence no ascocarps are developed in Zygomyceteous fungi.

Section (B): Virology and Bacteriology

Q.3: Choose the correct answer (A, B, C or D by shading and blurring in the provided bubble sheet):- **(25 Marks)**

26. All the bacteria fix nitrogen except:

a. *Rhizobium* b. *E. coli* c. *Azotobacter* d. cyanobacteria

27. Differential staining of bacteria on Gram staining is due to:

a. difference in the cell wall layer components of Gm + and Gm – bacteria
b. difference in the cell structure of Gm + and Gm – bacteria
c. difference in the mode of nutrition of Gm + and Gm – bacteria
d. none of the above

28. Which of the following is called as filamentous bacteria?

a. Mycoplasmas b. Spirochetes c. Actinomycetes d. Vibrios

29. Bacterial cell wall is made of:

a. Chitin b. Cellulose c. Dextran d. Peptidoglycan

30. Bacterial flagella are made up of:

a. Microtubules b. tubulin c. flagellin d. pillin

31. Structure appendage of bacteria meant for cell attachment during conjugation is:

a. Pilli b. flagella c. spinae d. cilia

32. Bacteria chromosome is:

a. single stranded and circular b. double stranded and circular.
c. single stranded and linear d. double stranded and linear.

33. What is a cluster of polar flagella called?

a. Peritrichous b. Monotrichous c. Amphitrichous d. Lophotrichous

34. Which of these is a coccus occurring in single or pairs?

a. Diplococci b. Streptococci c. Tetracocci d. None of the above

35. Flagella in bacteria enable them to

a. reproduce b. locomote c. thrive in media d. Adhere to tissue surfaces

36. This about cell wall of gram-positive bacteria is true.

a. Cell wall comprises of many layers b. Cell wall is thicker than the Gm - bacteria
c. Cell wall comprises of teichoic acids d. All of the above

37. 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

38. Endotoxin produced by gram negative bacteria is present in:

a. Peptidoglycan b. Lipopolysacharide c. Theichoic acid d. Inner membrane

a. Prophage b. Temperatephage c. Bacteriophage d. Metaphage

40. Bacillus is an example of:

a. Gram positive bacteria b. Gram negative bacteria c. Virus d. Viroid

41. Cell wall of gram-negative bacteria is:

a. Thick b. Lipids are present c. Teichoic acids are absent d. None of these

42. The bacterial cell multiplication is usually by:

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

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

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

44. Capsulated forms of bacteria are:

a. Virulent b. A virulent c. Useful d. Symbiotic

45. Acid fast bacteria are:

a. *Neisseria* b. *Staphylococci* c. *Mycobacteria* d. All of the above

46. What is the function of bacterial capsule?

a. Production of organism from phagocytosis b. Helps in adherence of bacteria to surface
c. Both a and b d. None of these

47. Rapid bacterial growth phase is known as:

a. Log b. Lag c. Lack d. None of these

48. Bacteria which need oxygen for growth are called:

a. Thermophilic bacteria b. Microaerophilic bacteria
c. Facultative anaerobic bacteria d. Mycobacteria

49. The number of generations per hour in a bacterium is:

a. Growth rate b. Generation time c. Sigmoid curve d. None of these

50. Growth curve does not include following phases of bacteria –:

a. Decline phase b. Stationary phase c. Lag phase d. Synchronous growth

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Good luck

Dr. Amal Danial

University of Assiut
Faculty of science
Dept. Botany & Microbiology

Exam: Final
Course: Virology, B 281
Time:2hrs
Date: 16 jan 2021

Please Answer the following Questions [50Marks]

A-Explain the following cryptogram [5 M]

R/I : 2.4/42+1.4/29 (or Σ2.8/46):S/S: S/Ne

B- "Some factors must be found to success of transmission by contact " comment [5 M]

C- Differ in 4 points between plant. and animal viral infection [5 M]

D- "Nuclei , vessels and cell wall, all may be affected by plant virus infection " Illustrate [10 M]

E- Show the proposal of Kassanis &Govier [5 M]

F- Where are the odd words :

1- Dyes – 2thiouracil – Nicotinic acid – Adenylic acid

2- Bulbs- Tattooing – Inhalation- Dogs

3- Rods – Caulimovirus – DNA- 50nm

4- Poly A- Vpg- 5' cap- DNA

5- Cl – Fu- Ne – O

G-Match the suitable meaning in column "A" with the scientific title in column " B" [6M]

(A)	(B)
1- The best known virus in the group	[ ] Systematic infection
2- Tobacco necrosis virus	[ ] R/I : 0.4/20 : S/S: S/fu
3- Virus movement via vascular elements	[ ] R/I : 1.5/19: S/S: S/fu

4- Only one virus in doubly infected host is aphid transmissible	**[ ]**	**Heat therapy**
5- Pathogen contains RNA only	**[ ]**	**Chemtherapay**
6- Using heat for controlling plant viruses	**[ ]**	**Systemic infection**
	[ ]	**Independent transmission**
	[ ]	**Type member**
	[ ]	**Viroids**

H- **Give a scientific title for each term** **[10 M]**

1- Amorphous structures formed in virus – infected hosts

2- An association makes aphids able to transmit viruses for ever

3- Severe symptoms leads to death of tissue

4- Viruses may coming from another planets

5- Time for which a virus carrying vector appears to be feed on a healthy host

Good luck

Prof Dr. S.K. Homida

	First Semester Exam. 2020/2021	
Botany and Microbiology Department	**Plant physiology (251 B) Second Level (Credit hours)**	**Time: 2 hours Total marks:50**

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

Q1): Choose the correct answer: *(40 Marks)*

1 - Stomata of a plant open due to

(a) influx of potassium ions
(b) efflux of potassium ions
(c) influx of hydrogen ions
(d) influx of calcium ions

2- Opening and closing of stomata is due to the

(a) hormonal change in guard cells
(b) change in turgor pressure of guard cells
(c) gaseous exchange
(d) respiration.

3- The movement of ions against the concentration gradient will be:

(a) active transport
(b) osmosis
(c) diffusion
(d) all of the above

4- In soil, water available for plants is

(a) gravitational water
(b) chemically bound water
(c) capillary water
(d) hygroscopic water.

5- When a cell is fully turgid, which of the following will be zero?

(a) turgor pressure
(b) water potential
(c) wall pressure
(d) osmotic pressure

6- With an increase in the turgidity of a cell, the wall pressure will be

(a) fluctuate
(b) remain unchanged
(c) increase
(d) decrease.

7- When water enters in roots due to diffusion, is termed as

(a) osmosis
(b) passive absorption
(c) endocytosis
(d) active absorption

8- The movement of water, from one cell of cortex to adjacent one in roots, is due to

(a) accumulation of inorganic salts in the cells
(b) accumulation of organic compounds in the cells
(c) water potential gradient
(d) chemical potential gradient.

9- In guard cells when sugar is converted into starch, the stomatal pore:

(a) closes completely
(b) opens partially
(c) opens fully
(d) remains unchanged

10- Water movement between cells is due to:

(a) T.P.
(b) W.P.
(c) D.P.D.
(d) incipient plasmolysis

11- Guttation is caused by:

(a) Transpiration
(b) Osmosis/DPD
(c) root pressure
(d) Osmotic pressure

12- 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

13- Incipient plasmolysis is,

(a)last stage of plasmolysis.
(b)middle stage of plasmolysis.
(c) initial stage of plasmolysis.
(d) none of the above.

14- Protoplasm is a,

(a) true solution
(b) suspension
(c) colloidal solution
(d) complex colloidal system of many phases

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

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

16- What happens to plant cells placed in water?

(a) They shrink (b) They gain water and expand (c) Nothing (d) all of above

17- In active transport, molecules move from an area of _____ concentration to an area of _____ concentration.

a) high: low
b) low: high
(c) high: higher
(d) low: lower

18- High root pressure can cause water to be lost by leaves through the process of:

(a) respiration
(b) regurgitation
(c) transpiration
(d) guttation

19- Turgor pressure is also referred to as:

a) solute potential
b) water potential
(c) pressure potential
(d) osmotic potential

20- A homogeneous and stable mixture of two or more chemical substances is called as,

a) True solution
b) Colloidal solution
(c) suspension
(d) none of the above

21- A plasmolysed cell or tissue can best be deplasmolysed by putting it into,

a) hypertonic solution (c) hypotonic solution
b) isotonic solution (d) water

22- A colloidal system with a fluid like consistency is known as,

a) gel b) semi-solid colloid c) sol d) none of above

23- What is one property of a suspension that is different from that of a solution or a colloid?

a) If left to rest, the particles of a suspension will settle out.
b) The particles of a suspension reflect light.
c) A suspension is always clear
d) Suspensions are colorless

24- How is a colloid different than a suspension?

a) Particles are homogeneous in a colloid, but heterogeneous in a suspension.
b) Particles will scatter light in a suspension, but not in a colloid.
c) Colloids are solutions, suspensions are not.
d) Suspensions can be separated using filter paper, colloids cannot.

25- During absorption of water by roots, the flow of water from epidermis to endodermis takes place by,

a) Apoplastic pathway c) Transmembrane pathway
b) Symplastic pathway d) All of above

26- In electron transport chain (oxidative phosphorylation), the final electron acceptor is:

a) O_2 b) CO_2 c) H_2O d) none of the above

27- Dark reaction called:

a) CO_2 fixation b) Calvin cycle c) Point (a) and (b) d) Photophosphorylation

28- Breakdown of glucose to pyruvic acid occurs in

a) Chloroplast membrane b) Cytoplasm c) Cristea d) Thylakoid membrane

29- Holoenzyme is composed of

a) Coenzyme b) Cofactor c) Apoenzyme d) All the above

30- Without oxygen, glycolysis allows cells to make small amounts of ATP through a process called

a) Electron transport chain b) Fermentation c) Oxidative phosphorylation d) none of the above

31- Metabolism includes:

a) Photosynthesis b) Respiration c) Fermentation d) all the above

32- Net gain of ATP in Krebs cycle is:

a) 8 b) 24 c) 38 d) 2

33- In the light reaction solar energy converted into:

a) ATP and NADH b) sugars c) ATP d) Point (b) and (c)

34- The "lock and key hypothesis" attempts to explain the mechanism of

a) Nomenclature of enzyme c) Enzyme Mode of action
b) Enzyme specificity d) Point (b) and (c)

35- The acceptor of Acetyl CoA in Kerbs cycle is:

a) Citric acid b) Malic acid c) Oxaloacitic acid d) Fumaric acid

36- Photosystems contain about.....chlorophyll molecule.

a) 20 b) 300 c) 70 d) 50

37- The most important protein in the plant cell is:

a) Epimerase b) Isomerase c) Rubisco d) Oxidase

38- Conversion of Xylulose-5p to Ribulose-5P catalyze by:

a) Epimerase b) Isomerase c) Rubisco d) Oxidase

39- The enzyme works on:

a) Reduce activation energy of the reaction

b) Increase the activation energy of the reaction

c) Increase reaction velocity

d) Point (a) and (c)

40- Chlorophyll (b) contains:

a) CH3 b) CHO c) Porphyrin ring d) Point (b) and(c)

Q2): Answer(T) forTrue sentences or (F) for False sentences: ***(10 Marks)***

41-The reaction center of PSII is P680.

(T) (F)

42- Glucose inter Kerbs cycle in the form of citric acid.

(T) (F)

43- Enzymes can be synthesized outside of living cells.

(T) (F)

44- Xanthophylls protect chlorophyll from photooxidation.

(T) (F)

45-The second stage of respiration is TCA cycle.

(T) (F)

46- Formation of carbohydrate is the main goal of Calvin cycle.

(T) (F)

47-Glycolysis cannot be driven without oxygen.

(T) (F)

48- Noncompetitive inhibitor reacts with the active site of the enzyme.

(T) (F)

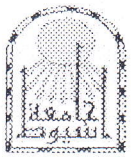
49- Water is the source of electrons in photophosphorylation.

(T) (F)

50- ETC occurred in the inner membrane of chloroplast.

(T) (F)

Good Look Dr. Abeer Radi Dr. Huwida Abdelkader

Assiut University Faculty of Science Botany and Microbiology Department		إمتحان: نبات اقتصادى (211ن) الزمن :ساعتان التاريخ:2021/3/10

السؤال الاول: ضع علامة (√) امام العبارة الصحيحة وعلامة (x) امام العبارة الخطأ (30 درجة)

1- لابد أن يتوفر فى الميكروب المستخدم فى الصناعة إنتاجية عالية للمنتج ( )
2- يمكن تحضير البادئ فى الصناعات الميكروبية من ميكروبات ممرضة ( )
3- البنية الغذائية المستخدمة فى العمليات الصناعية لابد أن تكون متوفرة وقليلة التكلفة ( )
4- ينمى الميكروب على الوسط الغذائى على السطح فى حالة الطريقة العميقة ( )
5- لابد أن يتوفر فى ظروف الإنتاج للصناعات الميكروبية الظروف المناسبة من درجة الحموضة و درجة الحرارة والتهوية ( )
6- يتم الحصول على المنتج بعد عملية التخمر بواسطة الإستخلاص والتنقية ( )
7- الطريقة المستمرة فى عملية الإنتاج تعتمد على نمو الميكروب فى أوعية على أجهزة الإهتزاز ( )
8- تتم عملية إنتاج الكحول الايثلى بواسطة الخميرة فى ظروف لاهوائية اثناء عملية التخمر ( )
9- تستخدم الخميرة كغذاء بروتينى وذلك لان نسبة البروتين فى الخميرة تصل الى 50% ( )
10- ينتج الجلسرين بواسطة طريقة السلفيت حيث يثبت السلفيت الاسيتالدهيد وبذلك يمنع عملية الاختزال وتكوين الكحول ( )
11- الجلسرين هو كحول ثلاثى الهيدروكسيل ينتج فى الصناعات الميكروبية بواسطة الخميرة ( )
12- لابد من تخفيف المولاس اثناء عملية التخمر لإنتاج الايثانول ليكون تركيز السكر 30% ( )
13- تستخدم الخميرة الحية كغذاء للانسان وذلك لإحتوائها على بروتينات وفيتامينات ( )
14- يتم إنتاج الجلسرين من الوسط الغذائى أثناء عملية التخمر بعد إضافة كلوريد الصوديوم ( )
15- تستخدم ال Fooder yeast كغذاء للانسان ( )
16- لابد أن تكون درجة الحموضة مادة التخمر عند pH= 7 اثناء عملية إنتاج الايثانول ( )
17- يعتبر المولاس أحد مخلفات صناعة قصب السكر بينما الشرش أحد مخلفات الصناعات اللبنية ( )
18- يحضر البادئ المتستخدم فى الصناعات الميكروبية بالتنمية على وسط غذائى مناسب فى ظروف هوائية ( )
19- يتم إضافة اللقاح فى بيئات التخمر المستخدمة فى الصناعات الميكروبية بنسبة 1- 10% ( )
20- الميكروب هو عبارة عن سلالة منتخبة من الكائنات الدقيقة المراد استخدامها ( )
21- يتم إنتاج خميرة الخباز من سلالات ذات صفات ثابتة وسريعة النمو ولها القدرة على تكسير العجين ( )
22- لابد من المحافظة على نشاط ونقاوة السلالات الميكروبية المستخدمة فى الصناعة ( )

23- يعتبر المولاس من أفضل المصادر لإنتاج الايثانول حيث انه يحتوى على نسبة سكر عالية 45-55% ( )

24- يخفف المولاس فى بيئة إنتاج خميرة الخباز الى 10% ( )

25- تستخدم الميكروبات فى صناعة منتجات كيميائية وصيدلانية مثل المضادات الحيوية ( )

26- أثناء عملية إنتاج الكحول بواسطة الميكروبات يتم معالجة بعض المصادر الكربونية بواسطة الاحماض او الانزيمات وذلك قبل استخدامها كوسط تخمر ( )

27- يتم إنتاج الفاكسينات ومضادات السيرم بواسطة الميكروبات ( )

28- تجمع خميرة الخباز بعد عملية التخمر بواسطة الطرد المركزى ( )

29- من النواتج الثانوية لصناعة الكحول كميات قليلة من حمض السكسينك والجلسرول ( )

30- يتم تجميع خميرة الخباز من وسط التخمر ثم تجفف وتسحق حتى تكون فى صورة غير حية ( )

السؤال الثانى: إختر الاجابة الصحيحة مما يلى: (20 درجة)

1- يتم إنتاج الخل بواسطة بكتريا *Acetobacter* عن طريق

أ. أكسدة الكحول الايثيلى
ب. إختزال الكحول الايثيلى
ج. أكسدة ثم اختزال الكحول الايثيلى
د. لا شيئ مما سبق

2- ينتج الخل بنسبة 10% عن طريق وضع نشارة خشب بالبراميل لتظل البكتيريا معلقة عليها وتسمى هذه الطريقة

أ. الطريقة البطيئة
ب. الطريقة الالمانية
ج. الطريقة الدائرية
د. جميع ما سبق

3- بكتريا حمض الخليك لها القدرة على اكسدة السوربيتول الى السربوز الذي يعتبر المادة الوسطية لأنتاج

أ. الجليكونيك
ب. حمض الفورميك
ج. حمض الاسكوربيك
د. حمض الستريك

4- يستخدم في عملية التخمر لانتاج السربوز

أ. الطريقة السطحية
ب. الطريقة العميقة
ج. أ & ب
د. طريقة الأهتزاز

5- تستخدم التخمرات البكتيرية الهوائية لانتاج

أ. الخل
ب. سوربوز
ج. ثاني هيدروكسيد الجلسرين
د. جميع ما سبق

6- تستخدم بكتيريا *Lactobacillus delbruckii* لإنتاج

أ. حمض الخليك
ب. حمض اللاكتيك
ج. حمض الاسكوربيك
د. جميع ما سبق

7- تستخدم البكتريا *Clostridium acetebutylicum* لإنتاج

أ. البيوتانول
ب. الايثانول
ج. الاسيتون
د. جميع ما سبق

8- تستخدم البكتريا *Clostridium butylicum* لإنتاج

أ. الريبوفلافين
ب. البيوتين
ج. الثيامين
د. البيريدوكسين

9- تعتبر ..... البكتيريا المحللة للبكتين وتستخدم في تعطين الكتان وإنتاج مستحضرات التجميل

أ. *Clostridium butricum*
ب. *Clostridium acetebutylicum*
ج. *Clostridium butylicum*
د. *Clostridium peotinovarium*

10- التخمرات البكتيرية اللاهوائية تستخدم لإنتاج

أ. حمض اللاكتيك
ب. الايثانول
ج. الاسيتون
د. جميع ما سبق

11- عند تنمية بكتريا ..... علي بيئة الجليسرول ومنقوع الذرة وفوسفات الامونيوم يتكون حامض داي أمينو بيميليك

أ. *Escherichia coli*
ب. *Enterobacter aerogenes*
ج. *Clostridium butylicum*
د. *Clostridium peotinovarium*

12- يتم تحويل حمض الفاكيتوجلوتاريك الناتج من دورة كربس الى حامض الجلوتاميك في وجود بكتيريا

أ. *Escherichia coli*
ب. *Enterobacter aerogenes*
ج. *Brevibacterium divaricatum*
د. *Lactobacillus delbruckii*

13- تستخدم فطرة عفن الخبز لإنتاج

أ. حمض السكسينك
ب. حمض الفيومارك
ج. حمض اللاكتيك
د. جميع ما سبق

14- تستخدم فطرة الاسبرجلس والبنسليم من الفطريات زقية لإنتاج

أ. حمض السيترك
ب. حمض الجلوكونيك
ج. حمض الاكساليك
د. جميع ما سبق

15- ينتج البنسلين علي بيئة تحتوي علي منقوع الذرة وسكر الاكتوز و املاح عند رقم هيدروجيني 5.5 بفطرة

أ. *Penicillium chrysogenum*
ب. *Penicillium digitatum*
ج. *Penicillium expansum*
د. *Penicillium citrinum*

16- من طرق إستخلاص الزيوت العطرية من النباتات

أ. طريقة التقطير
ب. طريقة العصير
ج. الإستخلاص بالمذيبات
د. جميع ما سبق

17- صناعة الورق تتم بإستخدام طرق كيميائية لإزالة اللجنين ومنها

أ. طريقة السلفيت　　ب. طريقة الصودا

د. طريقة السلفات　　ج. جميع ما سبق

18- يتم إستخراج بعض العقاقير الطبية من الجذور والاجزاء الارضية لبعض النباتات مثل

أ. اللحلاح　　ب. الكينين

ج. الايفيدرين　　د. البلادونا

19- من أمثلة النباتات التى تستخدم أوراقها فى إستخراج العقاقيرالطبية

أ. الكينين　　ب. الأفيون

ج. الصنوبر　　د. البلادونا

20- تستخدم الاكتينوميسيتات لانتاج ..... والفعال لعلاج التهابات المسالك البولية و الالتهاب الرئوي

أ. البنسلين　　ب. الاستربتومايسين

ج. الكلورمايستين　　د. جميع ما سبق

مع تمنياتى بدوام التوفيق والنجاح

د. حجاج احمد حسن

Final Examination

Plant Water Relations
Course No.: 343B
Time allowed: 2 hours

Department of Botany & Microbiology
50 Marks
First semester 2020/2021
3rd Level (Special Botany)

Answer the following questions:

1) Chose the correct answer: (20 Marks)

1) Which of the following is **not** the component of water potential?
   a- Osmotic potential
   b- Pressure potential
   c- Gravitational potential
   d- Assimilation potential
2) A cell with fully elastic wall is placed in hypertonic solution. What will **not** happen?
   a- Change in cell size and shape
   b- The whole cell will shrink
   c- Cytoplasm shrinks from the cell wall and undergoes plasmolysis
   d- Decrease in cell size
3) When a cell is placed in 0.25 M sugar solution, there is no change in it. So the external solution is called.....
   a- Hypertonic
   b- Isotonic
   c- Hypotonic
   d- None of the above
4) When a cell is placed in 0.5 M solution of sugar, there is no change in its volume. But if the same cell is placed in 0.5 M solution of NaCl there will be.....
   a- Decrease in volume
   b- Increase in volume
   c- No change in volume
   d- None of the above
5) Endosmosis takes place when a plant cell is immersed in.....
   a- Isotonic solution
   b- Hypotonic solution
   c- Hypertonic solution
   d- HCl solution
6) A solution of 1.0 M glucose develops a pressure of -27 bars in an osmometer. What is **not** correct?
   a- Pressure potential is -27 bars
   b- Osmotic pressure is 27 bars
   c- Osmotic potential is -27 bars
   d- Solute potential is -27 bars
7) The osmotic potential of pure water is
   a- One
   b- Zero
   c- Less than zero
   d- Between zero and one
8) Sunken stomata in xerophytes.....
   a- Increase transpiration
   b- Decrease transpiration
   c- Hinder transpiration
   d- Stop transpiration
9) When water enters the cell, ... is exerted on cell wall
   a- Osmotic pressure
   b- Suction pressure
   c- Turgor pressure
   d- Root pressure
10) Cell becomes turgid because of
   a- Plasmolysis
   b- Exosmosis
   c- Endosmosis
   d- Diffusion
11) The pathway in which water moves through cell wall without crossing any membrane
   a- Apoplast pathway
   b- Symplast pathway
   c- Vacular pathway
   d- Transmembrane pathway

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 littre 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- Dos 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

2) 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)**

3) Define each of the following: <u>(Answer three only)</u> **(3 x 3= 9 Marks)**

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

4) <u>Answer two only:</u> **(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

Botany and Microbiology Department	First semester Final exam. (2020-2021) Advanced Plant Anatomy (Code : 321 B) 3rd level students For Under Graduate students Date: 27/3/2021 Time allowed 2 hours	Assiut University

Choose the correct answer..... (50 marks)

No.	Question				Answer here
1	**A mature sieve tube differs from a sieve cells in**				
	A. lacing functional nucleus	B. presence of cellulosic lignification	C. being nearly dead	D. lacking cytoplasm	
2	**Companion cell associated with**				
	A. sieve tubes	B. collenchyma	C. secondary cambium	D. medullary parenchyma	
3	**Eustelic condition is known to occur in**				
	A. dicotyledons	B. gymnosperms	C. ferns	D. some pteridophytes	
4	**Which of the following is responsible for increasing girth of stem**				
	A. epidermis	B. xylem	C. phloem fibres	D. cambium	
5	**Which will decay faster?**				
	A. heart wood	B. sapwood	C. spring wood	D. softwood	
6	**Aerenchyma found in**				
	A. Xerophytes	B. halophytes	C. mesophytes	D. lithophytes	
7	**The meristem of extrastelar secondary growth**				
	A. Intra-vascular cambium	B. Inter-vascular cambium	C. phellogen	D. fascicular cambium	
8	**Vessels and companion cells are characteristic of the xylem and phloem of**				
	A. gymnosperms	B. fungi	C. angiosperms	D. pteridophytes	
9	**Pith and cortex do not differentiate in**				
	A. monocot stem	B. dicot stem	C. monocot root	D. dicot root	
10	**Resin duct of gymnosperms is an example of**				
	A. intercellular space	B. schizogenous cavity	C. lysogenous cavity	D. vacuole	
11	**Bicollateral vascular bundles found in**				
	A. Coconuts	B. Poaceae	C. Cucurbitaceae	D. Crusifera	
12	**Collenchyma is found in petioles of**				
	A. hydrophytes	B. Liana	C. herbs	D. xerophytes	
13	**Phloem fibres may known as**				
	A. Past fibres	B. bast fibres	C. lintecls	D. gelatinous cells	
14	**Angular collenchyma occurs in**				
	A. *Helianthus*	B. *Cucurbita*	C. *Althaea*	D. *Salvia*	
15	**Chlorenchyma consists of**				
	A. fibres	B. sclernchyma	C. parenchyma	D. collenchyma	
16	**Vascular cambium produces**				
	A. primary xylem and primary phloem	B. secondary xylem and secondary phloem	C. primary xylem and secondary phloem	D. secondary dylem and primary phloem	
17	**Bordered pits are found in**				
	A. sieve cells	B. vessel wall	C. companion cells	D. sieve tube wall	
18	**Epidermal outgrowth among the following are**				
	A. sclerides	B. stomata	C. lenticels	D. trichomes	

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19 **Which of the following statement is true?**
A. tracheids are unicellular with wide lumen
B. vessels are unicellular with narrow lumen
C. tracheids are multicellular with narrow lumen
D. vessels are multicellular with wide lumen

20 **Intravasicular cambium is situated**
A. in between vascular bundles
B. inside vascular bundles
C. Outside vascular bundles
D. in pith

21 **The youngest layer of 2ry xylem in a wood of dicot stem is located just**
A. inside pith
B. outside vascular cambium
C. inside vascular cambium
D. inside cork cambium

22 **Which of the following is not true about sclereids?**
A. these are form of sclerenchyma with fibres
B. these are also called stone cells
C. these are found in nut shells, guava pulp, pear
D. these are groups of living cells

23 **Derivatives of vascular cambium give rise to**
A. xylem
B. phloem
C. both a and b
D. xylem, phloem and vascular rays

24 ***Leptadenia* cambium produce**
A. interxylary phloem
B. exterxylary phloem
C. concentric vascular bundle
D. different xylem quantities

25 **Layer of Casparian strips in roots called**
A. exodermis
B. epidermis
C. hydodermis
D. endodermis

26 **Protoxylem firstly formed in the region away from the center of the axis followed by metaxylem progressively towards the center of the axis.**
A. Centripetal
B. Centrifugal
C. Amphiciribial
D. Amphivasal

27 **Vessels are found in**
A. most of angiosperms and few gymnosperms
B. all angiosperms and some gymnosperm
C. all angiosperms, all gymnosperms and some pteridophyta
D. all pteridophyta

28 **The simplest and most primitive stele is**
A. protostele
B. siphonostele
C. eustele
D. atactostele

29 **The appropriate age of a tree can be known by**
A. measuring its height
B. measuring its diameter
C. counting annual rings in main stem
D. counting annual rings in branches

30 **Which are the external protective tissues of the plant?**
A. Cortex and epidermis
B. Pericycle and cortex
C. Cork and cortex
D. Epidermis and cork

31 **Sap wood is a synonym of**
A. bark
B. periderm
C. outer layer of 2ry xylem
D. inner of 2ry xylem

32 ***Quillaja saponaria* shoots characterized by .....crystals**
A. columnar
B. twinned
C. prismatic
D. acicular

33 **Seed coat of Pisum sativum characterized by**
A. Stone cells
B. Astrosclerides
C. Macrosclerides
D. Osteosclerides

34 **Which of the following lake collenchyma at all?**
A. dicot stems
B. dicot leaves
C. monocot leaves
D. ferns

35 Procambium remains ring-like in cross section, xylem and phloem occur as continuous rings on the two sides of the procambium in
A. *Helianthus*
B. *Tilia*
C. *Ricinus*
D. *Vitis*

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36	***Glycyrrhiza glabra* shoots characterized by .....crystals**				
	A. columnar	B. twinned	C. prismatic	D. acicular	
37	**All following staments are true for trachea except**				
	A. small lumen	B. long cell	C. tapered ends	D. perforated ends	
38	**The contour of the core of xylem is lobed or star-shaped in cross-sectional view of**				
	A. Actinostele	B. Haplostele	C. Atactostele	D. Siphobostele	
39	**Xylary fibers with simple pits**				
	A. libriform fibres	B. bast fibres	C. septate fibres	D. lactiferous duct	
40	**The space in the stem vascular system through which the leaf grows.**				
	A. Leaf gap	B. Leaf trace	C. Branch gap	D. Branch trace	
41	**The healing of wounds in plants takes place by the activity of ..... meristem**				
	A. apical	B. secondary	C. intercalary	D. fascicular	
42	**Silica element occurs in cell walls of some species as**				
	A. *Ficus elastica*	B. *Elettaria cardamomum*	C. *Cinchona officinalis*	D. *Silicia sponteniana*	
43	**Abnormal secondary growth is found in**				
	A. Dionea	B. *Dracaena*	C. Cucurbita	D. B and C	
44	**Asymmetrical cell division of the protoderm produce ..... those then differentiate into guard cells**				
	A. GMC	B. meristemoid	C. GC	D. meristem	
45	**Tracheal plug called**				
	A. torus	B. tylosis	C. callus	D. pits	
46	**Annual rings not formed in monocots because**				
	A. scattered vascular bundles	B. absence of cambium	C. all of them are shrubs	D. none of them	
47	**The waxy substances associated with the walls of the cork**				
	A. cutin	B. suberin	C. lignin	D. albumin	
48	**After years of secondary growth, the cortex in a dicot root**				
	A. remains intact	B. completely sloughed away	C. converted to cork	D. digested inside the body	
49	**When phloem and cambium are present on both sides of xylem, the bundle called**				
	A. concentric	B. radial	C. bicollateral	D. collateral	
50	**When the bark is stripped from the tree, the vital vascular tissue removed is**				
	A. phloem	B. phelloderm	C. cork	D. cork cambium	

Best wishes

Dr. Ahmed Amro

Assistant Professor in Botany and Microbiology Department

Assiut University
Faculty of Science
Department of Botany & Microbiology

جامعة أسيوط
كلية العلوم
قسم النبات والميكروبيولوجى

3rd level (Microbiology & Botany Students)
Pathogenic Microorganisms (397B)

Final exam: 27th Feb 2021
Time allowed: 2 hours

I. Choose the correct answer: (50 Marks)

1. Which of the following diseases is considered as exogenous infections?
   a. Covid-19 b. Tuberculosis c. Kuru disease d. all the above
2. Pyelonephritis is .....
   a. type of food Poisoning b. lower urinary tract
   c. upper urinary tract d. sexually transmitted disease
3. Vaccination was invented by .....
   a. Jenner b. Pasteur c. Watson d. Flemming
4. A chronic fungal destructive disease characterized by production of abscesses called grains in subcutaneous tissue.
   a. Mycetoma b. Fungemia c. Aspergillosis d. Otomycosis
5. Severe pain in the lower abdomen and during urination, sore throat are the main symptoms of .....
   a. urinary tract infection b. gonorrhea
   c. pneumonia d. all the above
6. Human viruses contain both DNA and RNA in the same particle.
   a. True b. False
7. What does the term dimorphic mean?
   a. Bisexual b. Teleomorph & anamorph
   c. Yeast & filamentous d. Dikaryon
8. Which of the following normal flora is responsible for dental carries in children?
   a. *Candida* b. Glucan c. *Streptococcus mutans* d. *Streptococcus mitis*
9. Bacterial diseases are less common than fungal diseases.
   a. True b. False
10. Which of the following viruses includes DNA?
    a. HIV b. HCV c. HBV d. Covid-19
11. The main protective way when handling the blood by health-care workers.
    a. Wearing gloves b. Hand washing
    c. Sterilizing the place d. none of the above
12. *Streptococcus pneumoniae* infect the body through .....
    a. swallowing b. skin c. inhalation d. all the above

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13. Cryptococcosis is a disease of .....
a. bacterial infection
b. parasitic infection
c. viral infection
d. mycotic infection

14. A bacteriostatic agent inhibiting protein synthesis.
a. Chloramphenicol
b. ketoconazole
c. Gentamicin
d. Sulphonamides

15. Congenital infection is .....
a. fetus infection
b. indigenous infection
c. caused by *Toxoplasma*
d. All the above

16. Which of the following diseases is caused by Protozoa?
a. Giardiasis
b. Athlete's foot
c. Tetanus
d. All of the above

17. Lipopolysaccharide in cell walls is characteristic of .....
a. Gram-positive bacteria
b. Algae
c. Gram-negative bacteria
c. Fungi

18. Endophthalmitis is caused by which of the following pathogens?
a. *Mycobacterium tuberculosis*
b. *Candida albicans*
c. *Penicillium chrysogenum*
d. HIV

19. Which of the following is a symptom?
a. Blood pressure
b. Fatigue
c. Protein level
d. Fever

20. Polymyxins are .....
a. Mycotoxins
b. Bacteriostatic agents
c. Antifungal agents
d. Bactericidal agents

21. The Rickettsia and Chlamydia have similar features.
a. True
b. False

22. The antifungal agent which prevents RNA synthesis.
a. Amphotericin B
b. Vancomycin
c. Flucytosine
d. none of the above

23. The pathogens rarely penetrate the unbroken skin.
a. True
b. False

24. Penicillin could not impair human body because .....
a. it acts as a bacteriostatic agent.
b. it inhibits the synthesis of fungal cell wall.
c. the human body has no cell wall.
d. it inhibits the synthesis of bacterial cell membrane.

25. In case of food poisoning, solid foods and dairy should be avoided.
a. True
b. False

26. Which of the following statements is not true about meningitis?
a. It requires testing of cerebrospinal fluid (CSF).
b. It is caused by *Streptococcus pneumoniae*.
c. It is one of the sexually transmitted diseases.
d. Alteration of mental status, fever and neck stiffness are its classic symptoms.

27. Which of the following represents about 50% of stomach normal microbiota?
a. *Candida albicans*
b. Bacteroides
c. *Microsporum canis*
d. *Helicobacter pylori*

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28. If i. Acute phase, ii. Decline phase, iii. Prodromal period, iv. Convalescence and v. Incubation period; what is the correct sequence of different stages in the progression of infectious diseases?
a. ii, i, iv, iii and v b. i, ii, iii, iv and v c. v, ii, iv, iii and i d. v, iii, i, ii and iv

29. Virus is .....
a. A proteinaceous infectious particle
b. A nucleoprotein particle
c. An infectious form with a nucleic acid core
d. A single-celled prokaryotic organism

30. The action of the body response to microbial infection, get the body's defense mechanisms to the scene where they can work efficiently.
a. Inflammation b. Lysozyme c. Phagocytosis d. all the above

31. The stage of non-specific signs and symptoms.
a. Prodromal period b. Dimorphism c. Invasive phase d. Incubation period

32. The mortality rate, mode of transmission and incubation period are the main differences between Covid-19 and Influenza.
a. True b. False

33. A portal of exit of *Salmonella typhi.*
a. Stool b. Sneezing c. Urine d. Tears

34. *Alternaria molesta* is the causal agent of .....
a. Zygomycosis b. Phaeohyphomycosis c. Mycetoma d. Tinea capitis

35. Which of the following statements is false about exotoxin?
a. Very potent and has low LD 50.
b. Unstable to heat.
c. Originated from lipopolysaccharides.
d. Synthesized in the cytoplasm of Gram +ve bacteria.

36. A viral disease transmitted by droplets.
a. Measles b. Candidiasis c. Tuberculosis d. Shingles

37. The organisms that would normally not be able to cause an infection are called ..... pathogens.
a. virulent b. opportunistic c. susceptible d. true

38. a disease transmitted by contaminated water
a. Typhoid b. Tinea c. AIDS d. Aspergillosis

39. Which of the following is an anthropophilic fungal pathogen?
a. *Microsporum audouinii* b. *Microsporum canis*
c. *Microsporum gypseum* d. *Trichophyton verrucosum*

40. In the mucosal lining of the nose, *Staphylococcus aureus* is kept under control by a protease produced by .....
a. *Corneybacterium accolens* b. *Staphylococcus epidermidis*
c. *Candida albicans* d. none of the above

41. The site of infection of Kuru disease is .....
a. respiratory tract b. skin c. kidney d. brain

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42. Hemolysins are produced by .....
a. *Clostridium perfringens* b. *Clostridium tetani*
c. *Salmonella typhi* d. *Aspergillus niger*

43. Formation of antibodies in the host following microbial infection is called .....
a. passive acquired immunity b. vaccination
c. endogenous pyrogens d. active acquired immunity

44. When the host defenses overcome the infection before the full disease syndrome appears, it is called ..... infection
a. latent b. subclinical c. chronic d. acute

45. The production of white blood cells in urine of urinary tract infected patients
a. Dysuria b. Cystitis c. Pyuria d. none of the above

46. Which of the following statements explain hypersensitivity?
a. a mechanism of damaging host cells by microbial cells.
b. autoimmunity produced by normal immune system.
c. allergy produced by normal immune system.
d. All of the above.

47. Prokaryotic microorganisms, found in extreme habitats, lack peptidoglycan, and producing methane.
a. Bacillus bacteria b. Protozoa c. Archaea d. Rickettsia

48. HAV transmitted via
a. Coughing b. Blood c. Sneezing d. Cooking utensils

49. *Haemophilus influenzae* causes .....
a. Cystitis b. Typical Pneumonia
c. Typical Influenzae d. Atypical Pneumonia

50. Which of the following is not opportunistic pathogen?
a. *E. coli* b. HIV c. *Candida albicans* d. None of the above

51. Which of the following sites is not free from normal microbiota?
a. Conjunctiva b. Urine c. Bronchi d. All of the above

52. Incubation period for HCV
a. Two years b. Twenty hours c. Two months d. Few days

53. Which of the following is the causal agent of AIDS?
a. HAV b. HIV c. HBV d. HCV

54. All of *Klebsiella pneumoniae*, *Cryptococcus neoformans*, *Bacillus anthracis* and *Streptococcus pneumoniae* are .....
a. fungal pathogens b. bacterial pathogens
c. encapsulated d. causing pneumonia

55. Which of the following is only an exit portal of the pathogen?
a. Breast milk b. Oral cavity c. Parenteral route d. Nose

"انتهت الأسـئلة"

Best Wishes **Dr. *Nemmat A. Hussein***

Botany and Microbiology Department	First semester Final exam. (2020-2021) Plant Cell (Code : 323 B) 3rd level students For Under Graduate students Date: 2/3/2021	Time allowed 2 hours
		Assiut University

Choose the correct answer..... (50 marks)

No.	Question				Answer here
1	**To determine the ultrastructure of a cell organelle, the most likely method to be used would be**				
	A. autoradiography	B. phase-contrast microscopy	C. electron microscopy	D. micro-dissection	
2	**An undefined fibriller nucleus is seen in**				
	A. eukaryotic cell	B. cell of higher animals	C. prokaryotic cell	D. cells of higher plants	
3	**Cell membrane is mainly composed of lipid, proteins and carbohydrates. With respect to their mutual proportion, which of the following statements is correct?**				
	A. all the three are in equal proportions	B. lipids are least in proportion	C. proteins are least in proportion	D. carbohydrates are in least proportion	
4	**Membranes occur in**				
	A. chromosomes, nuclei and mitochondria	B. cytoplasm, chloroplasts and mitochondria	C. cytoplasm, nuclei and starch grains	D. chromosomes, chloroplasts and starch grains	
5	**Skeletal frame work of cell is made of**				
	A. cell wall	B. ER	C. cytoplasm	D. mitochondria	
6	**Several key enzymes in smooth endoplasmic reticulum is mainly concerned with**				
	A. protein synthesis	B. Glycerin synthesis	C. peptide bond synthesis	D. cholesterol synthesis	
7	**Chlorophyll is present**				
	A. in the grana of chloroplasts	B. on the surface of chloroplasts	C. dispersed throughout the chloroplasts	D. in the stroma of chloroplasts	
8	**The diameter of mitochondrion is**				
	A. 0.5 – 1µm	B. 50 – 200µm	C. 5 – 10µm	150- 300µm	
9	**Cell organelles considered to be rich in digestion and breakdown enzymes**				
	A. SER	B. mitochondria	C. Golgi complex	D. lysosomes	
10	**Autonomic genome system is present in**				
	A. ribosomes and chloroplasts	B. mitochondria and ribosomes	C. mitochondria and chloroplasts	D. Golgi body and mitochondria	
11	**Polysomes are**				
	A. class of microsomes	B. mitoribosomes	C. multiple ribosomes	D. Golgi bodies	
12	**All are membrane bound cell organelles except**				
	A. mitochondria	B. lysosomes	C. sphaerosomes	D. ribosomes	
13	**70 S type of ribosomes are found in**				
	A. mitochondria	B. chloroplasts	C. cytoplast	D. all of them	
14	**Eukaryotic 80 S ribosomes break into**				
	A. 60 S and 40 S	B. 40 S and 40 S	C. 60 S and 50 S	D. 50 S and 30 S	

Botany and Microbiology Department	First semester Final exam. (2020-2021) Plant Cell (Code : 323 B) 3rd level students		Assiut University
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15	**Ribosomes are attached to endoplasmic reticulum through**				
	A. ribophorins	B. r-RNA	C. t-RNA	D. hydrostatic reactions	
16	**Most of the hydrolytic enzymes function at**				
	A. acidic pH	B. basic pH	C. neutral pH	D. any pH	
17	**Lysosomes are called "Suicidal Bag" because they have**				
	A. hydrolytic enzymes	B. parasitic activity	C. food vacuole	D. catabolic enzymes	
18	**Peroxisomes are rich in**				
	A. catalytic enzymes	B. oxidative enzymes	C. DNA	D. polysaccharides	
19	**In a plant cell, the vacuole contains**				
	A. water	B. solutions	C. cytoplasm	D. protoplasm	
20	**In meiosis crossing over takes place during**				
	A. zygotyne	B. pachytene	C. diplotene	D. leptotene	
21	**Middle lamella is made up of**				
	A. suberine	B. calcium pectate	C. cellulose	D. pectin	
22	**Prokaryotic cell lacks**				
	A. nuclear membrane	B. nucleolus	C. membrane bound organelles	D. all of the above	
23	**Which of the following structures is thought to be exceptionally rich in hydrolytic enzymes?**				
	A. lysosomes	B. microsomes	C. chromosomes	D. endoplasmic reticulum	
24	**The fluid mosaic model of cell membrane postulates that**				
	A. a lipid bilayer has proteins embedded in itself and none on the surface	B. a lipid bilayer is coated by a layer of proteins on each face	C. a lipid bilayer is coated by a layer of proteins on the outer face only	D. a lipid bilayer has some embedded proteins and some proteins on the surface	
25	**Cristae help in**				
	A. respiration	B. transpiration	C. photosynthesis	D. photo-oxidation	
26	**The leucoplasts which store lipid are called**				
	A. chromoplasts	B. amyloplasts	C. elaioplasts	D. aleuroplasts	
27	**Cell size is measured in**				
	A. µm	B. mn	C. cm	D. nm	
28	**Microtubules is involved in the**				
	A. DNA recognition	B. muscle contraction	C. cell division	D. membrane architecture	
29	**In which of the following stages of cell division DNA content is doubled?**				
	A. interphase	B. prophase	C. metaphase	D. anaphase	
30	**Nuclear membrane disappears at**				
	A. early prophase	B. late prophase	C. metaphase	D. anaphase	
31	**During cell division, chromosomes come to equator at**				
	A. prophase	B. metaphase	C. anaphase	D. telophase	
32	**The stage of mitosis in which chromosomes begin to separate and move to the two poles of the dividing cell is called**				
	A. prophase	B. metaphase	C. anaphase	D. telophase	

Botany and Microbiology Department	First semester Final exam. (2020-2021) Plant Cell (Code : 323 B) 3rd level students	Assiut University
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33	**Exchange of chromosome segments between maternal and paternal chromatids during meiosis is called**				
	A. linkage	B. crossing over	C. telophase	D. domninance	
34	**Tonoplast is the membrane surrounding**				
	A. cytoplasm	B. nucleus	C. vacuole	D. mitochondria	
35	How many meiotic divisions should take place to produce 100 pollen grains?				
	A. 25	B. 50	C. 99	D. 100	
36	**Chromosome number is reduced to half in**				
	A. mitosis	B. amitosis	C. meiosis	D. free cell formation	
37	**The region of chromosome to which the spindle elements are attached is called**				
	A. centromere	B. chromomere	C. centiole	D. chromocentre	
38	**The total thickness of ectoplast is**				
	A. 200 - 300 A°	B. 100 - 200 A°	C. 50 - 75 A°	D. 75 - 100 A°	
39	**Chloroplasts that are going through the aging process**				
	A. Chloroplasts	B. Leucoplasts	C. Gerontoplasts	D. Chromoplasts	
40	**Proteins in the outer mitochondrial membrane allow small molecules to be exchanged between the cytoplasm and the inter-membrane space**				
	A. Pyrimidines	B. Pyrenis	C. Premidens	D. Porins	
41	**Most chloroplasts contain ..... grana**				
	A. 100-200	B. 100-1000	C. 10-100	D. 10-20	
42	**Proteins are permanently anchored and embedded within the lipid bilayer**				
	A. Glycoproteins	B. alpha-helix proteins	C. peripheral proteins	D. Integral proteins	
43	**Richard Altmann called mitochondria as**				
	A. Leucoplasts	B. Power houses	C. Chonderioblasts	D. Bioblasts	
44	**Cisternae of ER are long, flattened tubules having a diameter of**				
	A. 10 - 50 µm	B. 20 - 500 µm	C. 40 - 50 µm	D. 4 - 5 µm	
45	**The cisternae at the ..... called cis-face while at the ..... called trans-face**				
	A. maturing, forming	B. concave, convex	C. convex, concave	D. producing, absorbing	
46	**Protein complex V of inner-mitochondrial membrane contains**				
	A. succinate dehydrogenase	B. cytochrome c reductase	C. NADH dehydrogenase	D. ATP synthase	
47	**Proteins are located entirely within the boundaries of the bilayer core**				
	A. Helix bundle proteins	B. Peripheral proteins	C. Beta barrel proteins	D. Lipid-Bound Proteins	
48	**Calvin cycle enzymes present in the matrix of**				
	A. Vacuole	B. Plastids	C. Mitochordria	D. Nucleus	
49	**Microfilaments are made of two intertwined strands of a globular protein called**				
	A. tubulin	B. actin	C. keratin	D. desmin	
50	**Inner surface of the thylakoid membrane is granular due to small spheroidal**				
	A. Protiosomes	B. Dictiosomes	C. Quantosomes	D. Phytosomes	

Dr. Ahmed Amro

Assistant Professor in Botany and Microbiology Department

Assiut University
Faculty of Science
Botany & Microbiology Department
Course title: Microbial Metabolism

Paper exam
Microbial Metabolism
Allowable Time: 2 hours
1st Semester 2020-2021
Course code: 392

Answer ONLY Five Questions (with drawing as possible): (10 marks for each)

1) **Account the importance of the primary metabolism in microorganisms.**
2) **Illustrate with diagram the Induced Resistance (ISR and SAR) as Biocontrol Agents.**
3) **Write briefly on the production of the fungal chitinases.**
4) **Indicate the significance and applications of siderophores.**
5) **Give short notes on the different mechanisms of action of plant growth-promoting microorganisms.**
6) **Clarify the iron and fungal infections relationship.**
7) **Identify ONLY Five of the following:**

Fastidious – Gene expression – in vivo – Northern blot – Proteome – Proteomics – Jasmonic acid.

Good Luck

Khalid A. Hussein, PhD.

University of Assiut
Faculty of science
Dept. Botany & Microbiology

Exam: Final
Course: advanced Virology, B 381
Time:2hrs

Please Answer the following Questions [50Marks]

A- Match the suitable meaning in column "A" with the scientific title in column " B" ; put the number between the brackets [10 Marks]

(A)	(B)
1- Monolayer homogenous host cells support virus propagation	[ ] Star
2- A potential of a substance to induce an immune response	[ ] Spur
3- Storage antisera under drying and vaccum	[ ] Lyophilization
4- Line indicates to close serological relationship	[ ] Tissue culture
5- So small chemicals do not stimulate animal unless coupled to protein	[ ] Cellular immunity
	[ ] Haptens
	[ ] Lipids
	[ ] Antigenicity

B- Select the correct answer [Put a circle around the letter] [4 Marks]

1- **Among the prerequisites needed for substance to work as antigen…..**

a- It's mol. wt $<10^4$

b- Has amorphous shape

c- Non of the above is correct

2- **Serological tests are used for plant viruses to ……**

a- Locate virus particles

b- Determine quantity of antigen

c- Both of the above are true

3- **Not all epitopes are sharing in the reaction because .....**

a- Steric hindrance

b- Presence of hydrophobic groups

c- Bridges are formed between antigens

4- **About antigenicity which ascending arrangement is correct.....**

a- RNA ⟶ cellulose ⟶ protein

b- Protein ⟶ RNA ⟶ cellulose

c- Sucrose ⟶ RNA ⟶ protein

C- **Put a scientific title for each term [13 Marks]**

1- **Severe acute respiratory syndrome**

.....

.....

2- **A family comprises aviadenovirus**

.....

.....

3- **Elimination of virus – infected cells**

.....

.....

4- **Low O_2 level in blood**

.....

.....

5- Virus injection in the vein

.....

.....

6- Paraffin oil + emulsifying agent

.....

.....

7- Viral entry by respiratory tract

.....

.....

8- Proteins produced by body to fight viral infection

.....

.....

9- Virus production without cells death

.....

.....

10- A highest dilution of an antiserum reacted with its own antigen

.....

.....

11- Organ in animal responsible for antibodies production

.....

.....

12- very economic serological test

.....

.....

13- kind of reaction between antibodies and their heterologous antigens

.....

.....

D- give reason (s) [10 Marks]

1- Gastrointestinal tract as a natural barrier [2 Mark]

.....

.....

2- Rabbits are preterable for antisera production [3 Marks]

.....

.....

.....

.....

3- Tissue culture technique is widely used nowdays [2 Mark]

.....

.....

.....

4- Full virus particles are more immunogenic than empty ones [1 Mark]

.....

.....

First Semester Exam (2020-2021)

Assiut University

Faculty of Science

Botany and Microbiology Department

Palynology 431B

Time: 2 hours

Total score: 50 marks

Q1: Choose the correct answer (20 marks):

1. ..... is the study of pollen and spores found in honey.

A) Forensic palynology B) Melissopalynology C) Archaeological palynology D) None of the above

2. ..... is a sticky, oily substance made of lipids, proteins, aromatic compounds, and pigments.

A) Sporopollenin B) Tryphine C) Intine D) None of the above

3. ..... means a type of sexine/ectexine structure, in which the infratectal layer is characterised by partitions forming compartments of irregular size and shape.

A) Foveolate B) Areolate C) Alveolate D) None of the above

4. All the four pollen grains are arranged in one plane forming a square in polar view in .....tetrads.

A) Rhomboidal B) Decussate C) Tetrahedral D) None of the above

5. Most of the Mimosaceae members produce ..... pollen grains.

A) Monads B) Tetrads C) Polyads D) Pollinia

6. Based on NPC classification, trizonocolporate means.....

A) 343 B) 345 C) 354 D) 335

7. A rounded ectoaperture situated at the distal or proximal pole of a pollen grain.

A) Ulcus B) Ulculus C) Sulcus D) Sulculus

8. A thickening of the nexine/endexine bordering an endoaperture, or following the outline of an ectoaperture.

A) Costa B) Annulus C) Margo D) Operculum

9. A type of ornamentation when sculpturing elements are absent.

A) Areolate B) Scabrate C) Fossulate D) None of the above

10. Among the sculpturing types of pollen grains of family Asteraceae.

A) Echinate B) Scabrate C) Lophate D) All of the above

11. Among the sculpturing types of pollen grains with elements larger than 1 μm.

A) Clavate B) Rugulate C) Verrucate D) All of the above

12. The two layers disintegrate in the mature anther are.

A) epidermis/ tapetum B) middle layer/tapetum C) epidermis/endothecium D) endothecium/tapetum

13. ..... is initiated when the microsporocyte goes through two meiotic divisions and cytokinesis to form haploid microspores arranged in a tetrad.

A) Microsporogenesis B) Microgametogenesis C) Megasporogenesis D) Megagametogenesis

14. Pollen coat materials fill the space in-between bacula and tectum at ..... stage.

A) Early uninucleate B) Late uninucleate C) Bicellular D) Tricellular

15. The three cells at chalazal end are called

A) Antipodal cells B) Polar nuclei C) Egg cells D) Synergids

16. Transfer of pollen grains from a flower's anther to the stigma of another flower borne by the same plant is known as.

A) Allogamy B) Autogamy C) Dichogamy D) None of the above

17. A condition where the stigma and the carpels mature earlier than the anthers of the same flower

A) Allogamy B) Herkogamy C) Dichogamy D) Heterostyly

18. A condition where some sort of a barrier is formed between the stigma and the stamens of the same flower.

A) Allogamy B) Herkogamy C) Dichogamy D) Heterostyly

19. Common features of anemophilous flowers include:

A) Small flowers B) Dry pollen C) Versatile anthers D) All of the above

20. A very large quantity of pollen grains is required in.....

A) Anemophily B) Entomophily C) Zoophily D) None of the above

Q2: True or False (30 marks):

1. The term 'palynomorphs' refers to pollen grains, spores and certain microscopic plankton organisms in fossil form only.

2. In Erdtman's 1969 system, the term "Sexine" is evident.

3. The ectexine is always lamellate in mature pollen grains of gymnosperms.

4. The principal stratification (ectexine, endexine, and intine) of the gymnosperm pollen wall is identical to that of angiosperms.

5. The cappa of saccate pollen grains is a region on the proximal side of the corpus.

6. The perine is very thin, transparent, wrinkled and much wider layer found in gymnosperms.

7. The most common type of pollen composition in flowering plants is tetrads.

8. Amb is the outline of a pollen grain or spore seen in equatorial view.

9. Pollen grains with a polar axis longer than the equatorial diameter are called prolate.

10. The aperture functions only in pollen tube germination.

11. The number 655 refers to hexadizonoporate in NPC classification.

12. Apocolpium index is the ratio of the distance between the apices of two ectocolpi to its polar diameter.

13. The archesporial cell divides by periclinal division to give a sub-epidermal primary parietal layer and a primary sporogenous layer.

14. Anther dehiscence goes through endothecium expansion then septum degenerating then stomium splitting, respectively.

15. Bicellular pollen grains contain two sperm cells.

16. Pollen wall development requires contributions from both the sporophytic and gametophytic tissues.

17. Pollen mother cells are encased in a matrix known as callose wall.

18. Pollen wall development goes through plasma membrane undulation, then primexine deposition, then probacula formation, respectively.

19. The intine is formed by the end of uninucleate stage.

20. Tapetum contributes in pollen wall formation only at later stages of development.

21. Tapetosomes are specialized organs developed at tapetum and are originated from plastids.

22. In dioecious plants cross pollination becomes indispensable.

23. The flowers are large or if small they are grouped to form a large mass in Entomophily.

24. Transmission electron microscopy is best used for studying pollen grain ultrastructure and pollen development.

25. When palynology is used to reconstruct past vegetation and marine and Fresh water phytoplankton communities, this known as biostratigraphy.

26. Internal foramen is a more or less continuous layer within the outer sexine/ectexine composed of laterally connected parts of columellae.

27. The sporopollenin composition is fully understood.

28. The polarity gives rise to the polar and to the equatorial view.

29. A pollen grain with one pore at its distal pole can be considered as a heteropolar grain.

30. The intine components are derived from the surrounding sporophytic tapetum cells.

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With my best wishes

Mostafa Aboulela

Faculty of Science Botany and Microbiology Dept.		كليه العلوم قسم النبات والميكروبيولوجي
Biotechnical Analysis (B453) Course: Time: 2 hours Marks:50 marks		2020/2021 Level: Fourth

Answer the following two questions in four papers

First Question: Write correct (√) or false (×) :- **(30 marks)**

1. Hand homogenizer cell forced through narrow gap leading to disruption of cell membrane. ( )
2. Hepes is relatively free side effect buffers. ( )
3. pH meter is an electronic device used for measuring the pH of a liquid and solid. ( )
4. The carboxylic acid buffers (of low pKa) are generally most sensitive to temperature. ( )
5. Combined electrodes are better stored immersed in the bridge electrolyte (often KCl 4 M). ( )
6. Analytical balance is used to measure mass to a high degree of precision and accuracy. ( )
7. Micropipitte used to measure and transfer small volumes of liquids accurately and precisely. ( )
8. RCF= $1.12 \times 10^{-5} \times r \times (rpm)$. ( )
9. In rate zonal centrifugation, particles move to the position where their density is same as the gradient material. ( )
10. Color reaction is a chemical reaction that is used to transform colorless chemical compounds into colored derivatives. ( )
11. Electromagnetic radiation is a type of energy that is transmitted through space as a transverse wave at constant velocity. ( )
12. Spectrophotometry is performed using filter. ( )
13. EIA methods have greater analytical sensitivity than FIA methods ( )

14. A blank solution is one that contains some of the substances used in the assay except the antigen to be tested. ( )

15. A standard solution contains an unknown amount of the antigen of interest. ( )

16. Washing solution is a buffer that removes bound antibodies floating in the well. ( )

17. A chromatograph is equipment that enables a sophisticated separation. ( )

18. The sample is the substance to be separated during chromatography. ( )

19. A bonded phase is a stationary phase that is covalently bonded to the support particles or to the inside wall of the column tubing. ( )

20. Rf is the distance traveled by a given component divided by the distance traveled by the solvent front. ( )

21. Two way paper chromatography gets around the problem of separating out substances which have different R_f values. ( )

22. HPLC is a form of gas chromatography that utilizes small size columns and higher mobile phase pressures. ( )

23. Step wise elution: in which the change is linear in the composition of the mobile phase. ( )

24. GC is a common type of chromatography used in analytical chemistry for separating and analyzing compounds that can be vaporized and decomposition. ( )

25. Decrease of particles size of stationary improves separation. ( )

26. To decrease retention time, adding more water to the mobile phase. ( )

27. Substances of low concentration move slowly through chromatography separation. ( )

28. Adsorption chromatography, Solutes move at different rates according to the forces of attraction to the stationary phase. ( )

29. Ion exchange chromatography, mobile phase is liquid or gas. ( )

30. Chromatography classification according to mobile phase into PC, TLC and CC. ( )

Second Question: Choose the correct answer of the following:-

(20 marks)

1. ..... is also called electronic spectroscopy.
   a)UV spectrometer b)Colormetry c)Atomic spectrometry
2. .....cells distribution by high pressure sound waves.
   a)French press b) Sonication c)Hand homogenizer
3. Preventing buffer contamination by mixed with.....sodium azide.
   a)0.6% b)0.02% c)0.2%
4. .....buffer suitable for gel permeation and cation-exchange chromatography.
   a)Tris b)Phosphate c)Hepes
5. The ..... buffers (of high pKa) have temperature-sensitive pKa.
   a)Amine b)Carboxylic acid c)Phosphate
6. .....is an instrument that consists of copper steel chamber around which warm water/air is circulated by electric current.
   a) Incubator b) Laminar flow c)Autoclave
7. In.....rotors, the sample tubes are loaded into individual buckets.
   a)Vertical b)Fixed angle c) Swinging bucket
8. In ..... centrifugation density of the sample solution must be less than that of the lowest density portion of the gradient.
   a) Rate zonal b) Isopycnic Density-Gradient c) Differential
9. Light source in ultraviolet is ..... lamp.
   a)Deuterium b)Tungsten c)Fluorescent
10. .....is used in inorganic chemical analysis to analyze the elemental composition of samples.
    a)Colormetry b)Flamphotmeter c)UV spectrometry
11. Beer-Lambert law which expressed A=.....
    a)abc b)ABc c)abC
12. Microtiter plat is a plastic plate that contains..... wells.
    a)96 b)98 c)94
13. .....has been largely replaced in routine clinical laboratory practice by enzyme immunoassay.
    a)EIA b) FIA c)RIA

14..... is a physical method of separation in which the components to be separated are distributed between two phases

a) Chromatograph b) Chromatography c) Chromatogram

15.The ..... is the solvent that will carry the analyte.

a)Eluent b)Eluate c)Sample

16.Paper chromatography using a non-polar solvent and sample, they will have relatively ..... R_f values.

a)Equal b)low c)High

17.Efficiency of column chromatography separation .....with ratio length / width increase.

a)Increases b) Decreases c)Not change

18.....column temperature results in speed of elution but does not improve separation.

a) Decrease b) Increase c)Constant

19.....chromatography, stationary phase is thin film of liquid formed on the surface of a solid inert support.

a) Partition b) Affinity c) Ion exchange

20..... chromatography, stationary phase is porous gel with no attractive action on solute molecules.

a) Molecular Exclusion b) Affinity c) Ion exchange

21.Affinity chromatography, mobile phase is .....

a) Liquid b)Gas c) Liquid or gas

The end of the questions

Good luck

Dr/ Eman Aldaby

Assiut University Faculty of Science Botany and Microbiology Department	Course: Soil Microbiology Code: B491 Time: 2 hours First Semester (2020-2021)	

ملحوظة : يتم طمس (تسويد) الاجابة المختارة باستخدام القلم الجاف فقط.

Q1: Choose (T) for True sentence or (F) for False sentence: (30 Marks)

1. The mineral portion of the soil is divided according to the particle size into silt and clay.
2. Starch is a water-soluble polysaccharide and consists of hexoses, pentoses, and uronic acids.
3. Methanogenic bacteria are highly sensitive to the oxygen concentration in the system.
4. Chitin is a complex carbohydrate of galacturonic acid.
5. Keratinolytic microorganisms showed high capabilities to the elaboration of Keratinases.
6. Cellulose molecule is a branched polymer of glucose units linked together with β(1-4) glucosidic bonds.
7. The mechanism of sulphate conversion to hydrogen sulphide involves, reduction of sulphate to sulphite utilizing ATP followed by reduction of sulphite to hydrogen sulphide.
8. Keratins can be easily degraded by commonly known proteolytic enzymes like trypsin, pepsin and papain.
9. Proteins are complex organic substances containing nitrogen, sulphur, and sometimes phosphorus in addition to carbon, hydrogen and oxygen.
10. The oxidation of ammonium is performed by the *Nitrosomonas* species, which converts ammonia to nitrites.
11. The availability of phosphorus in soil depends on the degree of solubilization by the action of phosphatase produced by microorganisms in the soil.
12. Nitrification is the reduction of nitrates back into the largely inert nitrogen gas (N_2).

13. Nitrogen fixation is the conversion of nitrogen (N_2) from the atmosphere into a form readily available to plants.

14. The process in which soil microorganisms convert organic nitrogen of dead plants or animals within the remains back into ammonium (NH_4^+) is known as ammonification.

15. Acidogensis process is the conversion of long-chain fatty acids by acid former bacteria during anaerobic digestion into simpler substances.

16. Most keratinous wastes are accumulated, landfilled, or burned, and consequently causes environmental problems and human diseases.

17. Soil microorganisms convert complex organic nutrients into simpler inorganic forms which are readily absorbed by the plant for growth.

18. Biogas can be produced from the decomposition of organic waste by different groups of facultative and obligatory aerobic microorganisms.

19. *Desulfovibrio* can reduce sulphate into H_2S under anaerobic conditions.

20. The process of hydrolysis of proteins to amino acids is known as aminization.

21. Sulphur containing amino acids is oxidized into H_2S by the action of desulphurase enzyme.

22. The free-living bacteria *Azotobacter* can fix nitrogen symbiotically as organic nitrogen.

23. Chrysophyta is responsible for nitrogen fixation.

24. Keratins have a low content of disulfide bonds and are more pliable like skin and callus.

25. Lignin is a long-chain polymer of N- acetylglucose amine of β-1,4 linkage.

26. Biogas composed of methane, carbon dioxide and may have small amounts of hydrogen sulphide, moisture and siloxanes.

27. The process of hydrolysis of proteins to amino acids is brought about by certain microbial enzymes, collectively known as "proteases" or "proteolytic".

28. Humus is the soft brown/dark colored organic residue present in the soil resulting from the decomposition of plant and animal residues.

29. *Nitrobacter* is responsible for the oxidation of the nitrites (NO_2^-) into nitrates (NO_3^-).

30. **The biogeochemical process through which organic compounds are broken down to inorganic compounds or their constituent elements is known as assimilation.**

Q2: Choose the correct answer: (20 Marks)

31. **Some non-sulphur purple bacteria, e.g. ..... have the ability to degrade H_2S to elemental sulphur.**
    A. *Rhodospirillum* B. *Rhodopseudomonas*
    C. *Rhodomicrobium* D. All of them
32. **The bacterial species *Clostridium thermosaccharolyticum* represents a promising candidate for cellulose degradation because of .... characteristics.**
    A. Thermophilic B. Anaerobic
    C. Ethanologenic D. All of them
33. **Sulphur compounds that can readily be taken by the plants and are beneficial to agriculture.**
    A. Sulphates B. Hydrogen sulphide
    C. Elemental sulphur D. All of them
34. **The best microorganisms that have an important role in cementing and binding of soil particles.**
    A. Actinomycetes B. Yeast
    C. Fungi D. None of them
35. **Hydrogen sulphide undergoes decomposition to produce elemental sulphur by the action of certain photosynthetic sulphur bacteria, e.g. .....**
    A. *Clostridium* B. *Chromatium*
    C. *Rhizobium* D. None of them
36. **Antibiotic producer soil microorganisms, that are filamentous prokaryotic cells.**
    A. *Actinomyces* B. *Rhizoctonia*
    C. nematodes D. none of them
37. **The main carbon-containing product which produced from organic matter decomposition through anaerobiosis processes in waterlogged soils.**
    A. Fatty acids B. Ethanol
    C. Amino acids D. Methane
38. **The enzyme that responsible for breakdown of starch into glucose.**
    A. Glucosidase B. Gluconase
    C. Glucoamylase D. Pullulanase
39. **A free living nitrogen fixing bacteria which considered as plant growth promoter.**
    A. *Rhizobium* B. *Nitrobacter*
    C. *Azotobacter* D. All of them
40. ***Bacillus subtilis* and *Aspergillus aculeatus* have ability to hydrolyze pectic substances through the production of .....**
    A. Pectin esterase B. Pectate lyase
    C. Polygalacturonase D. All of them

41. **The chemolithotrophic bacteria that have ability to oxidize elemental sulphur into sulphates.**
    A. *Desulfovibrio* B. *Thiobacillus*
    C. *Rhodomicrobium* D. All of them
42. **The process of conversion nitrogen (N_2) from the atmosphere into a form readily available to plants by automobile engines and thermal power plants is called**
    A. Atmospheric N-fixation B. Biological N-fixation
    C. Industrial N-fixation D. Combustion of fossil fuels
43. **The fixed forms of nitrogen that can be uptake taken by the plants**
    A. Nitrate ions B. Urea
    C. Ammonium ions D. All of them
44. **The process of cleavage of acetic acid molecules by anaerobic bacteria is called**
    A. Hydrolysis B. Acidogenesis
    C. Acetogenesis D. Methanogenesis
45. **..... are methane-forming bacteria.**
    A. *Methanococcus* B. *Methanobacterium*
    C. *Methanosarcina* D. All of them
46. **The enzyme that responsible for the breakdown of the glucosidic linkage of starch into oligosaccharides.**
    A. Glucosidase B. Gluconase
    C. Glucoamylase D. Pullulanase
47. **The conversion of ammonium to nitrate is performed primarily by soil-living bacteria and other nitrifying bacteria.**
    A. Nitrification B. Assimilation
    C. Nitrogen fixation D. Denitrification
48. **Sulphate is the anion of a strong mineral acid (H_2SO_4) and prevents excessive alkalinity due to ..... formation by soil microorganisms.**
    A. NH_4 B. NO_2
    C. NO_3 D. HNO_3
49. **The enzyme that responsible for the breakdown of the glucosidic linkage of cellulose into cellobiose.**
    A. Glucosidase B. Gluconase
    C. Glucoamylase D. Pullulanase
50. **..... are considered the main agents of cellulose degradation especially dead wood and branches that have accumulated on the floor of the forest.**
    A. Fungi B. Algae
    C. Bacteria D. Actinomycetes

Good Luck

Dr. Elhagag Hassan

Botany &Microbiology Department	**Final-Term Examination 2020/2021** **Stress physiology (451B)** **(Credit hours)**	**Time: 2 hours**

Read carefully and choose the right answer of fifty only……..(50 marks)

1-…….is usually defined as an external factor that exerts a disadvantageous influence on the plant.
a)Tolerance
b) Resistance
c) Stress
d) All of the previous

2- The principal elements in the signal transduction pathways of plant cells are
a) Ca^{2+}
b) Protein kinases
c) Enzymes
d) All of the previous

3- ……. light interact in regulating plant development.
a) Blue & red
b) Green & red
c) Green & blue
d) Blue& yellow

4- Signals can be perceived by
a) Channels
b) Receptors
c) Pumps
d) Carriers

5- Plants and plant cells continually respond to signals that they use to alter their:
a) Physiology
b) Morphology
c) Development
d) All of the previous

6- A signal transduction pathway is initiated when a _____ binds to a receptor.
a) Tyrosine kinase
b) G-protein
c) Calmodulin
d) Signal molecule

7- The hormone produced during adverse environmental conditions is…….
a) Benzyl aminopurine
b) Bichlorophenoxy acetic acid
c) Ethylene
d) Abscisic acid.

8- The halophytes which can resist a wide range of salt concentrations are called as,

a) Glycophytes
b) stenohaline
c) Euryhaline
d) None of the above

9- Which of the following method are adopted by plants to cope with salt stress?

a) Avoiding salinity
b) Evading salinity
c) Tolerating salinity
d) All of above

10- Which of the following crop plants are high salt tolerant?

a) Maize and beans
b) Sugar beet
c) Cotton and barley
d) All of above

11- Plants alter metabolism in various ways to accommodate environmental stresses, including producing osmo-regulatory compounds.....

a) proline and glycine betaine
b) Gibberellin
c) IAA
d) Linolenic acid

12- To initiate transduction, a signal must first be sensed by carriers.

a) True
b) False

13-..... can act as a receptor

a) The membrane potential
b) Water potential
c) Osmotic potential
d) Interfere with enzymes functions

14- Ethylene receptor ETR1 is similar to a bacterial two-component system

a) GA-MYB Transcription Factor
b) Hybrid kinase
c) Phosphatase
d) Ca^{2+}/calmodulin

15- Certain enzymes, such as..... in the roots are either activated or inhibited *in vitro* by high salt concentrations.

a) Protein kinase
b) Allene oxide synthase
c) DNA- helicase
d) Membrane-bound ATPase

16- Salinity increases the osmotic activity of the plants.

a) True
b) False

17- Reduced or changed function of the plant in response to stress is called as,

a) Physical strain
b) Chemical strain
c) Biological strain
d) All of above

18- During acclimation, tolerance of a plant against a particular stress is

a) Decreased
b) Increased
c) Not affected
d) All of above

19- Some signaling compounds are

a) Ethylene
b) Jasmonic acid
c) Salicylic acid

20- A signal molecule is also known as a(n)_____.

a) Initiator
b) Protein
c) Receptor
d) ligand

21- The higher requirement of salinity presumably results from

a) Compartmentation of ions
b) Na^+ efflux pump
c) The repair of cellular damage
d) All of above

22- Exclusion of Na^+ from leaves is based on several mechanisms including

a) Efflux pumps in the roots
b) Accumulation in root vacuoles
c) Resorption in the xylem parenchyma
d) Re-translocation out of the leaves
e) All of above

23-..... is a very effective cytosolute because it is highly water soluble and does not carry a net charge.

a) Glycine betaine
b) Fructose 6-phosphate
c) Pinitol
d) ascorbate-glutathione

24-..... is the major antioxidant pathway in plastids, where ROS are generated during biochemical processes.

a) Krebs cycle
b) Calvin cycle
c) Ascorbate-glutathione cycle
d) Na^+–H^+ antiporters

25- Gradual accumulation of salt in the soil, usually due to

a) Irrigation techniques
b) Llittle precipitation
c) Quickly evaporated
d) Behind salts
e) All of the above

26- The type of compatible solutes involved has a strong taxonomic basis

a) Glycine betaine
b) Proline
c) Alanine
d) a & b

27- .....is one of the final products of peroxidation of unsaturated fatty acids.

a) Proline
b) Glycine
c) Malondialdehyde
d) Mannitol

28-.....prevents the transfer of electron from O_2 to organic molecules.

a) ROS
b) Antioxidants
c) MDA
d) Proteins

29- Plant pathogen attack strategies is deployed to utilize the host plant as a substrate.

a) Necrotrophy
b) Biotrophy
c) Hemibiotrophy
d) All of the previous

30- The switch of hemibiotrophic fungi from biotrophic to nectrotrophic is usually triggered by.....nutritional demands.

a) Decreasing
b) Increasing
c) Stop

31- Plant viruses are ..... and all face the same basic challenges.

a) Hemibiotrophs
b) Necrotrophs
c) Biotrophs

32- Waterlogged and flooded soils are soils with.....

a) Decreased oxygen levels
b) Excessive water levels
c) Excessive minerals levels
d) Both a&b

33- In submerged soils at very low redox potential, large amount of.....may be formed

a) Nitrogen
b) Acetone
c) Methane
d) Sulfur

34- Wilting and epinasty are due to.....

a) A decrease in hydraulic conductivity of the roots
b) Accumulation of ethylene in the shoots
c) Both a &b
d) Accumulation of phosphate

35- The enzyme responsible for the dismutation of superoxide anions to H_2O_2

a) Superoxide dismutase
b) Catalase
c) Nitrase
d) Peroxidase

36- Biotic stress in plants is caused by

a) Herbivore insects
b) Fungal & bacterial pathogens
c) Plant nematodes
d) All of the above

37- ROS are produced in both unstressed and stressed cells at several locations in

a) Cell wall
b) Chloroplast
c) Mitochondria
d) All of the above

38- Which products of microbial carbon metabolism accumulate in waterlogged soils?

a) Ethylene
b) Acetone
c) Phenolic compounds
d) Both a&c

39- Hypoxia strongly inhibits .....

a) Root respiration
b) Ion uptake by roots
c) Both a&b
d) Leaf senescence

40- Bronzing is due to Fe toxicity and occurs at leaf concentrations which increase the activity of

a) Esterases
b) Peroxidases
c) Oxidases

41- Each pathogen has evolved a specific way to invade plants by

a) Mechanical pressure surface layers
b) Enzymatic attack
c) Natural openings (stomata, lenticells)
d) All of the above

42- Which of the following involves in process of lipid peroxidation?

a) Initiation
b) Methylation
c) Acidification

43- The initial phase of lipid peroxidation includes .....

a) Formation of H_2S
b) Activation of O_2
c) Activation of nitrogen

44- Plant responses to a water deficit depend on the

a) Length and severity of the water deficiency
b) The plant species
c) Age and developmental stage
d) All of the above

45- Waterlogging soils often occurs in .....climates

a) Tropical
b) Temperate
c) Subtropical

46- Anoxia occurs when

a) Absence of molecular O_2
b) Absence of CO_2
c) Depletion of O_2

47- Wetland rice fields are major source of .....

a) CH_4 emission
b) Hydrogen
c) Chloric acids
d) Nitrogen

48- Peroxisomes are the major sites of intracellular .....

a) H_2O_2
b) O_2
c) OH^-
d) None of the above

50- Which is produced during water stress that brings stomatal closure?

a) Ethylene
b) Abscisic acid
c) Ferulic acid
d) Coumarin.

51- .....prevents the transfer of electron from O_2 to organic molecules.

a) ROS
b) Antioxidants
c) MDA
d) Proteins

52- Tocopherols are synthesized only by photosynthetic organisms and are present in only green parts of plants

a) True
b) False

Good luck

Dr. Abeer Radi *Dr. Fatma Farghaly*

Assiut University – Faculty of Science
Department of Botany and Microbiology

Course: Biological Control (B 499)
Date: 28 February 2021
Time allowed: 2 hours

Serial No.	Choose the correct answer .....(Total marks=50)		
1	Iron chelating compounds produced by bacteria and fungi are called;		
	a- Indole Acetic Acid	b- Siderophores	c- Oospores
2	*Ampelomyces quisqualis* is a mycoparasite used for biocontrol of :		
	a- Powdery mildews	b- Root rots	c- Wilt diseases
3	Gray rot of strawberries can be controlled by spraying plants with:		
	a- Zoophthora radicans	*b- Gliocladium roseum*	c- *Agaricus* species
4	Flavipin and Epicorazine are antimicrobial compounds produced by:		
	a- Epicoccum nigrum	b- *Fusarium* species	c- *Streptomyces* species
5	*Bacillus subtilis* is an effective biocontrol agent against:		
	a- Tobacco Mosiac Virus	b- Damping off diseases	C- Crown gall
6	One of the following can be used as a biofertilizer		
	a- Sclerotium rolfsii	*b- Erynia neoaphidis*	*c- Pseudomonas aeruginosa*
7	Bacillomycin-D is exhibits antibiosis against:		
	a-*Fusarium oxysporum*	b-*Bacillus* species	c-Aphids
8	Plant diseases caused by Sclotinia and *Sclerotium* species can be controlled by:		
	a-*Aspergillus flavus*	b-*Coniothyrium minitans*	c-*Fusarium solani*
9	*Coelomomyces stegomiyae* is effective in the biocontrol of:		
	a- Mealy bugs	b- Downey midews	c- Mosquito larvae
10	Induced systemic resistance of plants can be enhanced by treatment with:		
	a- Botrytis cinerea	*b- Rhizoctonia solani*	*c- Trichoderma viride*
11	*Ampelomyces quisqualis* produces a lot of conidia oozing from:		
	a- Pycnidia	b- Sporangia	c- Ascomata
12	Fungal pathogens of insects penetrate their hosts with the aid of:		
	a- Chitinases	b- Endospores	c- Hyphagens
13	Each trichospore produced by *Smittium culisetae* is provided with:		
	a- Three appendages	b- One appendage	c- Chloroplast
14	*Entomophthora verulenta* can be formulated in a phosphate buffer containing:		
	a- Zygospores	b- Ascospores	c- Sporangia
15	Red Palm weevil can be controlled biologically by:		
	a- *Coelomomyces*	b- *Beauveria*	c-*Plasmopara*
16	Colony color of *Trichoderma* species is:		
	a- Green	b- Violet	c-Black
17	Conidia of *Metarhizium anisopliae* are:		
	a- Unicellular	b- Rough walled	c- Multicellular
18	Conidia of *Beauveria bassiana* are produced sympodially by:		
	a- Rachis-like cells	b- Pycnidia	c- budding
19	Several insects are killed by some toxic metabolites of *Metarhizium* such as:		
	a- Destruxins	b-Agrocin	c-Salicylic acid

20	At maturity the colony color of *Metarhizium anisopliae* is		
	a- Brown	b- Yellow	c-White
21	In solid cultures colonies of *Beauveria bassiana* appear:		
	a- White	b- Blue	c- Mauve
22	Nematodes can be trapped and killed by some fungal species belonging to:		
	a- *Pythium*	b- *Ampelomyces*	c- *Arthrobotrys*
23	A bioagent used for protection of trees against crown gall disease:		
	a- Agrobacterium tumifaciens	*b- Agrobacterium radiobacter*	*c- Aspergillus ochraceus*
24	Late blight of potato can be controlled biologically by certain species of:		
	a- *Chaetomium*	b- *Phytophthora*	c- *Arthrobotrys*
25	Iturin-A, Surfactin and fungycin are bioactive compounds produced by:		
	a-*Pythium oligandrum*	b-*Fusarium graminearum*	C- *Bacillus amyloliquifaciens*
26	*Trichoderma harzianum* attack plant pathogens by several weapons including:		
	a-Toxins and lytic enzymes	b-chlamydospores	d- Zoospores
27	*Sclerotinia* species form dark colored sclorotia that germinate producing:		
	a- Cleistothecia	b- Arbuscules	c- Apothecia
28	Copepod (fish lice) is the secondary host in the life cycle of:		
	a- *Coelomomyces*	b- *Streptomyces*	c- Adult mosquitoes
29	*Coniothyrium minitans* is formulated as water dispersible granules containing:		
	a- Azygospores	b- Pycnospores	c- Rhizoids
30	*Rhizoctonial solani* can be controlled by antagonistic fungi including:		
	a- *Trichoderma*	b- *Botrytis*	c-*Sporidesmium*
31	Resting sporangia of *Coelomomyces* are derived from:		
	a-Gametothalus	c- Sporothallus	d- Phialides
32	*Entomophaga maimaiga* exhibits high virulence against:		
	a- Gypsy moth larvae	b- Powdery midews	c- Endomycorhizae
33	Villose conidia with hair-like appendages are diagnostic for identification of:		
	a-*Zoophthora radicas*	b-*Colletotrichum falcatum*	c-*Conidiobolus coronatus*
34	*Smittium culisetae* is highly lethal to:		
	a-Aphids	c- Leaf hoppers	d- Anopheles larvae
35	Overgrowth of bioagents on plant pathogenic fungi is called:		
	a-Mycoparasitism	b-Synergism	d- Mutualism
36	Zwittermicin-A is produced by:		
	a-*Bacillus cereus*	b- *Phytophthora* species	c- *Streptomyces* species
37	*Sporidesmium sclerotivorum* can be sprayed for protection of plants against infection by:		
	a-*Bacillus subtilis*	c- Anthracnose	c- *Sclerotinia* species

38	*Entomophthora muscae* is the main pathogen of:		
	a- House flies	b-Date palm weevil	c-Ectomycorhizae
39	The colony color of *Purpureocillium lilacinum* is:		
	a- Yellow green	b- Blue green	c- Pinkish to purple
40	Verticillate arrangement of phialides is characteristic to species of:		
	a- *Lecanicillium*	b- *Epicoccum*	c- *Sclerotium*
41	*Paecilomyces fumosoroseus* is effective in controlling:		
	a- Powdery mildews	b- Early blight of potatoes	c- White flies
42	Constricting rings are nematode trapping structures produced by:		
	a- *Hirsutella* species	b- *Arthrobotrys dactyloides*	c- Yeasts
43	Formation of fungal trapsis stimulated by compounds in nematode body such as:		
	a- Nemin	b- *Chaetomin*	c- Abscisic acid
44	One of the endoparasitic fungal species that destroys nematodes		
	a- *Streptomyces*	b- *Catenaria anguillulae*	c- *Entomophthora*
45	Sporangia of *Catenria* are formed within nematode body and produce		
	a- Uniflagellate zoospores	b- Biflagellate zoospores	c- Non-motile spores
46	*Dactylaria candida* and *Nematoctonus* can kill nematodes with the aid of:		
	a-Adhesive knobs	d- Zoospores	e- Zygospores
47	Non-constricting rings are formed on prostrate hyphae of:		
	a- *Rhizoctonia solani*	b- *Trichoderma harzianum*	c- *Dactylaria candida*
48	Adhesive networks are produced by some predaceous fungi such as:		
	a- *Arthrobotrys oligospora*	b- *Paecilomyces lilacinus*	c- Vesicular mycorhizae
49	*Monacrosporium cionopagum* attacks nematodes by:		
	a- Resting sporangia	b- Vellose conidia	c- Adhesive branches
50	A compound produced by *Bacillus subtilis* showing antibiosis against *Pythium* species		
	a- Mycosubtilin	b-Gliotoxin	b- Phenazine

End of Questions

Best wishes,

Professor Dr. Ahmad M. Moharram