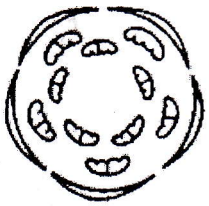
Assiut University
Faculty of Science
Botany Department
Jun. 2022

Course code: 232B
Course: **Taxonomy of flowering plants**
2nd Semester – Final Exam
Time: 2 Hours
Marks: 50

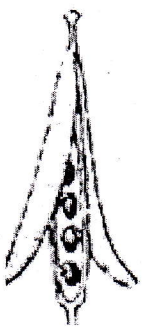
No. of questions: 2 No. of Pages: 2

Answer the following questions (50 marks) (1 mark each)

First question: - Choose the correct answer: -



1. **Position of staminal whorls of the corresponding picture is called: -**
   a. Isostemenous b. diplostemenous c. obdiplostemenous d. stramineous
2. **Which one is not a part of a floral whorl:-**
   a. sepal b. petal c. bract d. carpel
3. **The arrangement of sepals & petals in bud is known as:-**
   a. aestivation b. placentation c. duration d. modification
4. **non-functional stamens are called as:**
   a. stamenal tube b. fertile stamen c. staminodes d. none of the preceding
5. **A condition when filaments & anthers are fused is known as:-**
   a. syngenesious b. synandrous c. syncarpels d. adelphous
6. **In raceme, the flowers arranged in succession called:-**
   a. basipetal b. acropetal c. centrifugal d. separate
7. **Flowers are unisexual and borne on the inner wall of the cup in cymose groups:-**
   a. syconium b. helicoid c. scorpioid d. verticillaster
8. **Fruit with single seed and pericarp fused with testa is called:-**
   a. caryopsis b. achene c. urticle d. nut
9. **The edible part of banana is:-**
   a. meso- & endocarp b. epi- & mesocarp c. epicarp d. pericarp
10. **The seedless fruits are called:-**
    a. endocarpic b. schizocarpic c. parthenocarpic d. noncarpic
11. **The dehiscent fruit that splits open along more than two sutures is called:-**
    a. legume b. follicle c. Siliqua d. non the preceding
12. **Fruit of the corresponding picture is called: -**
    a. pome b. berry c. drupe d. siliqua



13. **The correct scientific name of Mango (المانجو) plant:-**
    a. *Mangifera sp.* b. *Mangifera indica* c. *Mangifera indica* L. d. all the preceding
14. **Among the botanists who proposed an artificial system for plant systematic is:-**
    a. Theopharastus b. Takhtajan c. Hutchinson d. Cornquist
15. **Four o'clock family that characterized by a petaloid tepals is:-**
    a. Lamiaceae b. Apiaceae c. Fabaceae d. Nyctaginaceae
16. **Plant family that characterized by cross-like petals and tetradynamous stamens is:-**
    a. Lamiaceae b. Brassicaceae c. Malvaceae d. Apiaceae
17. **The plant family that characterized by papilionaceous flowers is called:-**
    a. Fabaceae b. Caesalpiniaceae c. Mimosaceae d. Brassicaceae
18. **The plant family that characterized by umbel inflorescence and inferior ovary is called:-**
    a. Apiaceae b. Oleaceae c. Rosaceae d. Scrophulariaceae
19. **The plant family that characterized by ligulate leaves and opened sheath is called:-**
    a. Oleaceae b. Poaceae c. Solanaceae d. Cyperaceae
20. **Which of the following plants is belonging to family Chenopodiaceae:-**
    a. *Papaver somniferum* b. *Bougainvillea glabra* c. *Spinacia oleracea* d. *Gypsophila elegans*

21. Which of the following plants is belonging to subfamily Rosoideae:-

a. *Rosa sp.* b. *Prunus armeniaca* c. *Pyrus malus* d. all the preceding

22. Which of the following plants is belonging to family Caesalpiniaceae:-

a. *Acacia arabica* b. *Vicia faba* c. *Cassia nodosa* d. *Phaseolus vulgaris*

23. Which of the following plants is belonging to pulses:-

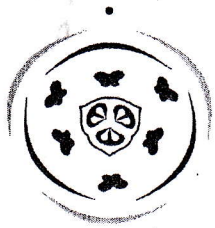
a. *Lupinus termis* b. *Vicia faba* c. *Phaseolus vulgaris* d. all the preceding

24. The plant family that characterized by bilabiate flowers and a gynobasic style is:-

a. Apocynaceae b. Lamiaceae c. Solanaceae d. Convolvulaceae

25. The corresponding floral diagram is belonging to family: -

a. Malvaceae b. Lamiaceae c. Liliaceae d. Brassicaceae



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

1	Perianth is undistinguishable calyx & corolla	
2	The ovary is called superior when the flower is hypogenous	
3	Axile placentation present in unilocular, bicarpellary ovary	
4	Didynamous androecium have 4 stamens (2 inner long + 2 outer short	
5	Verticillaster is a dichasial cyme ends into monochasial cyme.	
6	Spadix is a spike like inflorescence that bear unisexual flowers on pendulous axis	
7	Scorpioid with successive lateral branches develops on alternate sides (zigzag)	
8	The nature of fruit depends on the type of pollination.	
9	In drupe fruit, the stony part is the mesocarp.	
10	Samara is like achene, but pericarp is winged.	
11	Cremocarp develops from inferior ovary and at maturity splits into 2 mericarps.	
12	The common names of plants are best called vernacular names.	
13	Linnaeus is the botanist who named as the father of taxonomy.	
14	Chenopodiaceae is the pink family with (5 or 10) stamens and central placentation.	
15	Fabaceae has a posterior petal differ and (5 or 10) stamens.	
16	Potato, tomato and bazengane are belonging to family Solanaceae.	
17	Bignoniaceae is characterized by 4 didynamous stamens and a single staminode.	
18	The stem of family Cyperaceae is hollow, rounded.	
19	*Gossypium barbadense* is belonging to family Malvaceae.	
20	*Acacia arabica* is belonging to family Mimosaceae.	
21	*Oryza sativa* is one of the cereals plants	
22	*Nerium oleander* is belonging to family Apocynaceae.	
23	*Helianthus annuus* is an oil seed plant.	
24	*Antirrhinum majus* is belonging to family Scrophulariaceae.	
25	*Iris chrysophylla* is belonging to family Liliaceae.	

Best Wishes ...

Prof. Dr. Momen Zareh & Dr. Mostafa Aboel ella

Assiut University Faculty of Science Botany & Microbiology Department		جامعة أسيوط كلية العلوم قسم النبات والميكروبيولوجى
General microbiology (291B)	Final exam (June 2022)	Time: 2 hours
Microbiology & Botany students (2nd level)		

لاحظ ان الامتحان فى سبع ورقات

Part A (Fungi 25 marks)

Question: Choose the correct answers and put it in the table (25 marks)

1) **..... means the fungus enters in partnership or share benefit with another organism**

(a) Facultative parasites (b) Heterotrophes (c) Obligate parasites (d) Symbiosis

2) **..... thallus is multinucleated with naked protoplasmic mass known as plasmodium**

(a) Slime moulds (b) True moulds (c) Obligate moulds (d) Facultative moulds

3) **In club root diseas the ..... occurs in the root hairs**

(a) Primary phase(b) Secondary phase (c) a and b (d) Late phase

4) **..... are intercellular fungal mycelia that absorbs food from host cells**

(a) Conidiophore(b) Plasmodium (c) Haustoria (d) Hyphae

5) **Kingdom ..... includes prokaryotic organisms like bacteria**

(a) Protista (b) Monera (c) Mycetae (d) Plantae

6) **If the fungus hyphae break up into small fragments, each fragment in suitable condition gives rise to a new individual it is called .....**

(a) Budding (b) Sporulation (c) Fission (d) Fragmentation

7) **In mastigomycotina; fungi produce .....reproductive units during their life cycle**

(a) Motile (b) Non-motile (c) a and b(d) Sterile

8) **..... means fungi that lack chlorophyll and get their own food from inorganic material**

(a) Symbiosis (b) Parasites (c) Obligate parasite (d) Heterotrophes

9) **Zygospores are a type of sexual spores present in .....**

(a) Ascomycetes (b) Eumycota (c) Zygomycetes (d) Deuteromycetes

10) **Mycorrhizae referred to symbiosis relationship between the fungus and .....**

(a) Plant roots (b) Algae (c) Bacteria (d) Archegonates

11) *Synchytrium endobioticum* causea black wart disease of .....

(a) Tomato (b) Potato (c) Wheat (d) Maize

12) ..... characterized by producing globose gemmae

(a) *Saprolegnia* (b) *Achlya* (c) *Aphanomyces* (d) *Brevilegnia*

13) ..... characterized by the zoosporangial proliferation

(a) *Saprolegnia* (b) *Dichtyuchus* (c) *Aphanomyces* (d) *Brevilegnia*

14) When the oldest cell set at the base and the youngest at the tip of chain it called .....succession

(a) Acropital (b) Lateral (c) Basipital (d) Normal

15) ..... is acervulus-like body, in which the compact mass of conidiophores develop on a cushion-like mass of hyphae or stroma.

(a) Conidiomata (b) Sporodochia (c) Acervuli (d) Synnema

16) ..... involves the fusion of a motile male gamete with a non-motile female gamete

(a) Isogamy (b) Anisogamy (c) Heterothallic (d) Heterogamy

17) ..... is the fusion of the two nuclei brought together by plasmogamy to form a diploid (2n) nucleus or Zygote

(a) Isogamy (b) Karyogamy (c) Heterogamy (d) Anisogamy

18) ..... is spherical closed ascocarps with scattered asci inside

(a) Cleistothecium (b) Perithecium (c) Acervuli (d) Apothecium

19) ..... is narrow ostiolate flask-shaped ascocarps with arranged asci inside

(a) Cleistothecium (b) Perithecium (c) Acervuli (d) Apothecium

20) When planogametes are morphologically similar but different in size it called.....

(a) Isogamy (b) Anisogamy (c) Heterothallic (d) Heterogamy

21) ..... is a large, erect reproductive structure bearing compact conidiophores fuse together to form a strand resembling a stalk.

(a) Conidiomata (b) Sporodochia (c) Acervuli (d) Synnemata

22) ..... means fungi have no vascular system.

(a) Atracheophyt (b) Achlorophyllous (c) Thallophyta (d) Homothallic

23) Aggregation of uninucleate naked cells in Myxomycota (Slime molds) is .....

(a) Plasmodium (b) Pseudoplasmodium (c) Pseudoparenchyma (d) Parenchyma

24) ..... can grow only in living host tissues and capable to causing diseases.

(a) Obligate parasites (b) Facultative parasites (c) Obligate saprobes (d) Predators

25) Haeckel (1866), proposed that organisms classified into ..... kingdoms

(a) Two (b) Three (c) Four (d) Five

Part (1): Choose the correct answerand complete the following table

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

With my best wishes

Dr. Ghada Abd-Elmonsef Mahmoud

Part B: Bacteria (25 marks)

Choose the correct answer and complete the following table:

Q	Answer	Q	Answer	Q	Answer	Q	Answer
26		33		40		47	
27		34		41		48	
28		35		42		49	
29		36		43		50	
30		37		44			
31		38		45			
32		39		46			

26. Organism that was capable of obtaining their carbon from fixing atmospheric CO_2 to cell carbon

A) autotrophs
B) chemoheterotroph
C) photoheterotroph
D) mixotrophs

27. The primary stain used during spore staining that stains the spore and not the vegetative cell

A) Water
B) Safranin
C) Malachite Green
D) Crystal Violet

28. .....help the bacteria in adherence

A) Capsule
B) Pili
C) Capsule and pili
D) Exosporium

29. Before endospore formation is complete, which of the following must take place?

A) DNA must be copied.
B) A spore coat must be added.
C) Peptidoglycan must be added
D) All of the answers are correct

30. Which food borne illness could potentially be found in present in poultry products?

A) *Clostridium Perfringens*
B) *E. Coli*
C) *Clostridium Botulinum*
D) *Salmonella*

31. Which of the following is NOT found on all endospores?

A) Core
B) Cortex
C) Exosporium
D) All of the answers present in endospores

32. Common vegetative reproduction in bacteria is by

A) Conjugation
B) Fragmentation
C) Budding
D) Binary fission

33. Transfer of genetic material in bacteria through virus is termed as

A) Transduction
B) Conjugation
C) Recombination
D) Transformation

34. Which of the following refers to the time required for one cell to become two cells?

A) Log phase
B) Generation time
C) Lag phase
D) Stationary phase

35. The stage characterized by a gradual decrease in cell populations is called the:

A) Log phase
B) Death phase
C) Lag phase
D) Stationary phase

36. If a culture starts with 50 cells, how many cells will be present after five generations with no cell death?

A) 200
B) 1600
C) 400
D) 3200

37. A soup container was forgotten in the refrigerator and shows contamination. The contaminants are probably which of the following?

A) Thermophiles
B) Mesophiles
C) Acidophiles
D) Psychrotrophs

38. Bacteria isolated from a hot tub at 50 °C are probably which of the following?

A) Psychrotrophs
B) Mesophiles
C) Hyperthermophiles
D) Thermophiles

39. Bacteria living in salt marshes are most likely which of the following?

A) Acidophiles
B) Halotolerant
C) Barophiles
D) Thermophiles

40. **Which statement is TRUE of Gram-positive bacteria?**

A) They have a thin peptidoglycan layer.
B) They use teichoic acid to move ions across the cell wall.
C) They have a double membrane.
D) They are freely permeable to disinfectants

41. **In bacterial cell wall,, N-acetylglucosamine (NAG) and N-acetylmuramic acid (NAM) bind together by**

A) Ionic bond
B) β-(1-4)-glycosidic bond
C) Covalent bond
D) Hydrogen bond

42. **In bacterial cell, both flagella and pili are made up of**

A) protein
B) Nucleic acid
C) carbohydrate
C) Lipid

43. **A peptidoglycan is a polymer of .....**

A) Amino acids and amino sugars
B) Amino sugars only
C) Amino acids and fatty acid
D) Amino acids only

44. **Organims that obtain their C from organic compounds and energy from the sunlight are referred as**

A) Photoorganotrophs
B) Chemoorganotroph
C) Photoautotroph
D) Heterotroph

45. **Meaning of ..... is the flagella surrounding the bacterial cells**

A) Monotrichous
B) Lophotrichous
C) Amphitrichous
D) Peritrichous

46. **What is an obligate anaerobic microbe?**

A) A microbe that needs oxygen to survive.
B) A microbe that needs carbondioxide to survive.
C) A microbe that may or may not need oxygen to survive.
D) A microbe that dies in the presence of oxygen.

47. **.....these bacteria are so strictly adapted to high pressures that they will rupture when exposed to normal atmospheric pressure.**

A) Acidophiles
B) Halotolerant
C) Barophiles
D) Thermophiles

48. **.....that promotes the fastest rate of growth and metabolism**

A) Optimum temperature
B) Minimum temperature
C) Maximum temperature
D) Thermophiles

49. Endospores are created by bacteria

A) when environmental conditions become unfavorable
B) in aerobic conditions
C) as a defense mechanism against invading viruses
D) when environmental conditions become favorable

50. .....may cause small infections like strep throat and some serious diseases like pneumonia

A) *Streptococcus*
B) *E. Coli*
C) *Clostridium Botulinum*
D) *Salmonella*

Good luck

Dr Shymaa Ryhan

Assiut University Faculty of Science Botany & Microbiology Department		جامعة أسيوط كلية العلوم قسم النبات والميكروبيولوجى
Systemic mycology 1 (262B)	Final exam (2021-2022)	Time: 2 hours
Microbiology & Chemistry and Microbiology students (2nd level)		

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

1. **Which of the following fungi contains rhizoids to fix itself on the nutrient medium?**
   (a) *Rhizopus* sp. (b) *Aspergillus* sp. (c) *Pythium* sp. (d) *Phytophthora* sp.
2. **Zygomycetous genus characterized by branching of sporangiophores is .....**
   (a) *Circinella* (b) *Syncephalastrum* (c) *Phycomyces* (d) *Rhizopus*
3. **Reproductive structures that can move are NOT called .....**
   a) zoospores (b) swimming gametes (c) conidia (d) none of the above
4. **Genus characterized by its growth on cattle dung is .....**
   (a) *Circinella* (b) *Thamnidium* (c) *Phycomyces* (d) *Pilobolus*
5. **Which of the following taxonomic category is more specialized .....**
   (a) kingdom (b) order (c) genus (d) family
6. ***Synchytrium endobioticum* causes ..... disease**
   (a) black wart of tomato (b) black wart of potato
   (c) Swellings of cabbage (d) None of the above
7. **The genera of Family ..... form columellate sporangia and sporangioles**
   (a) Mucoraceae (b) Cunninghamellaceae (c) Mortierrellaceae (d) Thamnidiaceae
8. **Self-sterile fungi that require a partner for sexual reproduction are called .....**
   (a) Heterotrophic (b) Heterothallic (c) Heterogenous (d) Heterocyclic
9. **Which of the following is rightly describes members of F: Synchtriaceae?**
   (a) Epibiotic (b) Euocarpic parasites (c) operculate sporangia (d) None of the above
10. **Which of the following is rightly describes *Albugo* sp.?**
    (a) Fucultitave parasite (b) tiny sporangiphores (c) Obligate parasite (d) None of the above
11. **Perenosporales is divided into 3 families, based on .....**
    (a) the shape of the sporangiophore (b) the shape and arrangement of sporangia
    (c) sporangiophore branching (d) all of the above
12. **Sporangiophores are covered in calcium oxalate and sporangia are monosporic in .....**
    (a) *Saprolegnia* (b) *Cunninghamella* (c) *Albugo* (d) *Circinella* sp.
13. **Zoospores formation is preceded by the formation of a bubble-like vesicle, which emerges from the tube extending from the hyphae of .....**
    (a) *Rhizopus* sp. (b) *Aspergillus* sp. (c) *Pythium* sp. (d) *Circinella* sp.
14. **The fungus that causes white rust disease of cruciferous plants is .....**
    (a) *Dichtyuchus* sp. (b) *Albugo* sp. (c) *Bremia* sp. (d) *Zygorhynchus* sp.
15. **..... is a genus belong to F: Perenosporaceae and characterized by the swollen sporangiophores.**
    (a) *Bremia* (b) *Plasmopara* (c) *Sclerospora* (d) *Perenospora*
16. **Oospore with one large oil globule disposed in one side of the oospore and not enclosed by ooplasm is called .....**
    (a) Eccentric (b) Polycentric (c) Subeccentric (d) Monocentric
17. **When the anthridial branch lacking but with anthridial cell abstracted as a part of oognial stalk immediately below the oogonium, is referred as:-**
    (a) Monoclinous (b) Diclinous (c) Hypogenous (d) Epigenous

18. **Haeckel (1866) , proposed that organisms classified into ..... kingdoms**
(a) Two (b) Three (c) Four (d) Five
19. **..... means fungi lack chlorophyll and unable to manufacture their own food.**
(a) Autotrophes (b) Pseudotrophes (c) Predatory (d) Heterotrophes
20. **..... can grow only in living host tissues and capable to causing diseases.**
(a) Obligate parasites (b) Facultative parasites (c) Obligate saprobes (d) Predators
21. **..... mainly live on dead organic matter and are incapable of infecting of living organisms.**
(a) Obligate parasites (b) Facultative parasites (c) Obligate saprobes (d) Predators
22. **..... is a type of association between the fungus and the plant roots.**
(a) Lichens (b) Bacteriorrhiza (c) Mycorrhiza (d) Saprophytes
23. **Aggregation of uninucleate naked cells in Myxomycota (Slime molds) is .....**
(a) Plasmodium (b) Pseudoplasmodium (c) Pseudoparenchyma (d) Parenchyma
24. **..... is exogenous non-motile spores borne externally on special structure.**
(a) Conidiospores (b) Thallospores (c) Oidia (d) Arthrospores
25. **..... are cells resulted from the union of two protoplasts brings the compatible two nuclei close together within the same cell.**
(a) Homothallic (b) Heterothallic (c) Karyogamy (d) Dikaryon

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

26. **The male gametes differ from the female gametes in the genus *Allomyces* in size and shape.**
(a) True (b) False
27. **Fungi belong to Oomycetes are characterized by the production of zoospores that have two flagella.**
(a) True (b) False
28. **The antheridia are always cylindrical or club-shaped and are much smaller than the oogonia.**
(a) True (b) False
29. **The fungal division Myxomycota is characterized by its ability to secrete gelatinous substances.**
(a) True (b) False
30. **Club-root disease of Cabbage is caused by *Plasmodiophora brassicae.***
(a) True (b) False
31. **Fungi are usually harmful.**
(a) True (b) False
32. ***Phytophthora* characterized by forming lemon shape sporangium**
(a) True (b) False
33. **Fungi are widespread organisms.**
(a) True (b) False
34. **The family plasmodiophoraceae includes 5 genera differentiated based on the shape of cystosorus.**
(a) True (b) False
35. ***Bremia* is a soil inhabitant genus, causes root rot and damping off diseases of seedlings.**
(a) True (b) False
36. **Diplontic life cycle means the main form of the life cycle is diploid, which produce gametes.**
(a) True (b) False
37. **Thallophyta means the organism has roots, stems and leaves.**
(a) True (b) False

38. Heterogamy involves the fusion of a motile male gamete with a non-motile female gamete.

(a) True (b) False

39. Anamorph refers to the imperfect (asexual) fungal stage.

(a) True (b) False

40. Fungi characterized by presence of lomasomes and smooth endoplasmic reticulum.

(a) True (b) False

41. Fungal mitochondria structurally different from those of green plants.

(a) True (b) False

42. Chlamydospores are produced by transformation of pre-existing cells of the thallus and are detached by decay of the hyphae.

(a) True (b) False

43. Dayal (1975) mentioned seven characters that are used in the fungal taxonomy.

(a) True (b) False

44. Hyphae in many fungi develop cross walls or septa in mycelia, as in Mastigomycotina and Zygomycotina.

(a) True (b) False

45. Spermatium empties its content into receptive hyphae during the plasmogamy stage.

(a) True (b) False

46. When mycelium becomes organized into loosely or compactly woven tissues, it called parenchyma.

(a) True (b) False

47. Euocarpic fungi means the thallus entirely converted into reproductive structures.

(a) True (b) False

48. Fission involves the production of small outgrowth or protrusion from a parent cell.

(a) True (b) False

49. Fungal spores have high cytoplasmic movement.

(a) True (b) False

50. Xenospores, concerned with dispersal, while memnospores, concerned with survival.

(a) True (b) False

With our best wishes

Prof. Abdel-Raouf M. Khalil *Dr. Ghada Abd-Elmonsef Mahmoud* *Dr. Dalia A. Gaber*

	Final- Term Examination 2022	
Botany & Microbiology Department	**Molecular biology (212B)** **Second Level (Credit hours)**	**Time: 2 hours** **Date: 16 June 2022**

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

Choose the correct answer: ***(50 Marks)***

1. The leading strand of a DNA molecule has the following sequence:
5'-CGCATGTAGCGA-3'
Which of the following sequences is complementary to the leading strand shown above?
a) 5'-AGCGATGTACGC-3'
b) 3'-AGCGATGTACGC-5'
c) 5'-GCGTACATCGCT-3'
d) 3'-GCGTACATCGCT-5'

2. A gene is:
a) a segment of DNA that codes for a protein
b) a set of homologous chromosomes
c) a molecule within DNA
d) a type of pants

3. Which of the following takes the genetic code to the cytoplasm:
a) DNA
b) deoxyribose
c) tRNA
d) mRNA

4. Transcription is:
a) The synthesis of DNA from a RNA template
b) The synthesis of RNA from a DNA template
c) The synthesis of proteins from information on a mRNA
d) The synthesis of polydiester linkages from an exon

5. All the following enzymes are involved in DNA replication <u>EXCEPT</u>
a) Helicase
b) DNA ligase
c) DNA polymerases
d) RNA polymerases

6. RNA has all the following <u>EXCEPT</u>:
a) Ribose sugar b) Single strand c) Contains uracil d) Deoxyribose sugar

7. A mRNA actively being translated in the cytoplasm would have all of the following <u>EXCEPT</u>:
a) A poly-A tail
b) A 5' cap
c) Exons
d) Introns

8. In bacteria, a small circular piece of DNA found outside the main chromosome is called
a) Plasmid b) CDNA c) RFLP d) PCR

" بقية الأسئلة في الصفحة القادمة "

9. The basic subunit of chromatin is ...

a) DNA b) nucleosome c) histone proteins d) HO gene

10. The first step in cloning a gene is to

a) insert a plasmid into a bacterium
b) isolate the DNA from the organism that contains the desired gene
c) plate cells on agar
d) treat plasmids with restriction enzymes

11. The purpose of the Southern Blot test is to

a) look for a specific nucleotide sequence in the DNA being tested
b) to determine how closely two organisms are related
c) to identify the size of the fragment that contains the sequence
d) a and c

12. Plasmids are put into bacterial cells by

a) restriction enzymes
b) DNA ligase
c) binding of cohesive sticky ends
d) transformation

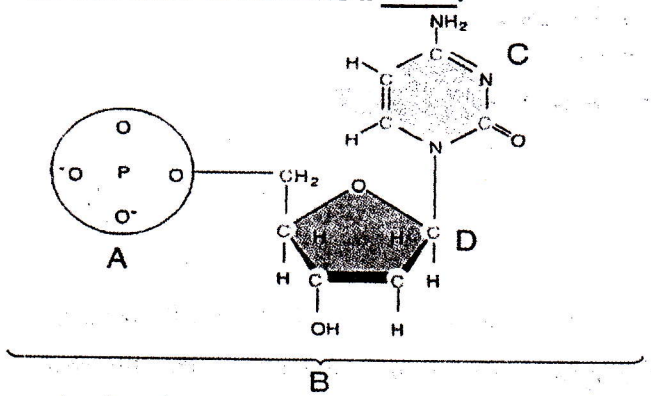
13. For DNA amplification to occur, which of the following are needed?

a) loose ribonucleotides
b) RNA primers
c) thermostable DNA polymerase
d) all of the above

14. Which of the following would produce blue colonies?

a) bacterial cells without plasmids
b) bacterial cells containing plasmids without inserts
c) bacterial cells containing plasmids with the gene of interest
d) bacterial cells containing plasmids with inserts, but not the gene of interest

15. The letter A indicates a _____.



a) phosphate group b) nucleotide c) nitrogenous base d) sugar

16. If host cells are ampicillin sensitive and are plated on a medium containing ampicillin

a) only cells that have not taken up the ampicillin resistant vector can grow
b) only cells that have taken up the ampicillin resistant vector can grow
c) all cells will grow
d) ampicillin is inactivated

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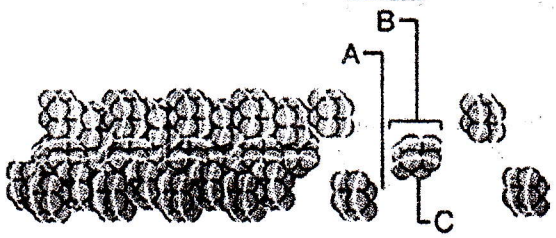
17. The letter C indicates _____.



a) supercoils
b) a nucleosome
c) a DNA double helix
d) histones

18. Sigma factor is
a) a subunit of mRNA
b) a subunit of RNA polymerase
c) a subunit of DNA
d) a protein needed for transcription to proceed

19. Electrophoresis is used to .....
a) separate fragments of polymer molecules
b) clone genes
c) cut DNA into fragments
d) match a gene with its function

20. Splicing joins together
a) two introns b) two exons c) an intron and an exon. d) two RNA molecules

21. The lac-z gene marker codes for
a) galactosidase, which splits x-gal
b) galactosidase, which makes x-gal resistant to splitting
c) ampicillin resistance
d) white colonies

22. At the beginning of each cycle, the temperature of PCR reaction is raised to .....
a) elongate the primer
b) renature the double DNA strands
c) polymerize the DNA
d) denature the double DNA strands

23. How many nitrogenous bases are needed to specify three amino acids
a) 3 b) 9 c) 6 d) 12

24. Which of the following is <u>NOT</u> required for a PCR reaction?
a) dNTPs
b) a primer
c) *Taq* polymerase
d) RNA transcriptase

25. Which of the following vector can maintain the largest fragment of foreign DNA?
a) YAC b) Cosmid c) Bacteria d) Plasmid

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26. During translation, the ..... site within the ribosome hold the growing amino acid chain while the ..... site holds the next amino acid to be added to the chain.

a) A, P
b) P, A
c) P, E
d) E, A

27. Okazaki fragments occur on the ..... and are bonded together by .....

a) leading strand, polymerase
b) mRNA, anticodons
c) lagging strand, ligase
d) tRNA, polymerase

28. What process occurs before the other?

a) Transcription, then Translation
b) Translation, then Transcription
c) Transcription, then Ionization
d) Translation, then Polymerization

29. How does transcription begin?

a) It doesn't, transcription doesn't exist
b) When RNA polymerase binds to a sigma factor to create a holoenzyme and the sigma factor guides the RNA polymerase to certain locations where transcription should begin.
c) The non-template strand signals to the binding receptor that a phospodiester bond is present and ready for action.
d) The RNA polymerase binds to a coding strand located downstream.

30. What is a nucleosome?

a) A nucleosome is a unit made up of nucleoplasm and ribosomal subunits.
b) A nucleosome is the portion of DNA preparing for transcription.
c) A nucleosome is a cluster of introns wrapped up as a unit.
d) A nucleosome is a region in which DNA is wrapped tightly around a cluster of histone proteins.

31. Proteins contain ..... different amino acids, whereas DNA and RNA are composed of ..... different nucleotides

a) 20, 64
b) 20, 146
c) 4, 20
d) 20, 4

32. In the process of cloning eukaryotic DNA into prokaryotic cells, the role of reverse transcriptase is to make

a) double-stranded eukaryotic cDNA from mature mRNA
b) mature mRNA from precursor mRNA
c) bacterial DNA from eukaryotic DNA
d) mRNA from DNA

33. The smaller the DNA fragment

a) the closer to the origin it will appear
b) the brighter color it produces with ethidium bromide
c) the faster it migrates during separation by electrophoresis
d) the slower it migrates during separation by electrophoresis

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34. The steps involved in the Southern Blot test should be performed in which order the following

1 = x-ray film
2 = electrophoresis
3 = digestion with restriction enzyme
4 = ethidium bromide
5 = radioactive probe

a) 3, 2, 4, 5, 1
b) 3, 4, 2, 5, 1
c) 3, 2, 5, 4, 1
d) 2, 4, 3, 5, 1

35. The purpose of PCR is to .....

a) make more copies of DNA primers to increase protein synthesis
b) make many copies of an organism's DNA sequence so a small number of organisms will become large enough to be identified
c) make more RNA so large units of protein can be synthesized
d) recycle DNA using thermocyclers

36. What is the role of messenger RNA?

a) To bring the DNA message to the mitochondrion
b) To bring the tRNA message to the nucleus
c) To bring the DNA message to the ribosome
d) To take amino acids to the ribosome

37. Which of the following is <u>NOT</u> a type of RNA?

a) Messenger
b) Transcription
c) Transfer
d) Ribosomal

38. Where in the cell would rRNA be found?

a) Nucleus
b) Ribosomes
c) Golgi Apparatus
d) Chloroplast

39. RNA contains which bases?

a) adenine, thymine, guanine, cytosine, uracil
b) adenine, thymine, guanine, cytosine
c) thymine, guanine, cytosine, uracil
d) adenine, guanine, cytosine, uracil

40. Which mode of information transfer usually does not occur?

a) DNA to DNA
b) DNA to RNA
c) DNA to protein
d) all occur in a working cell

41. The polymerase chain reaction is.....

a) It is a DNA sequencing technique.
b) It is a DNA degradation technique
c) It is a DNA amplification technique
d) All of the above

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42. Short sequence in the promoter where transcription factors bind

a) TATA box
b) Promoter
c) RNA polymerase
d) Initiation Sequence

43. *Thermus aquatics* is the source of .....

a) RNA polymerase
b) Primase
c) Taq polymerase
d) Both a and c

44. What is the process of binding of primer to the denatured strand called?

a) Annealing
b) Renaturation
c) Denaturation
d) None of the above

45. How many DNA duplexes are obtained from two DNA duplex after 4 cycles of PCR?

a) 8 b) 16 c) 4 d) 32

46. When translation occurs, what molecules are involved?

a) DNA, mRNA, tRNA, rRNA, and amino acids
b) DNA and mRNA
c) DNA and rRNA
d) DNA, rRNA, and tRNA

47. How many types of deoxynucleoside triphosphates are used in Sanger sequencing?

a) 1 b) 2 c) 8 d) 4

48. DNA sequencing refers to the

a) Technique used to determine the sugar sequence in a DNA molecule
b) Technique used to determine the phosphorus sequence in a DNA molecule
c) Technique used to determine the bases sequence in a DNA molecule
d) All the above

49. Which one of the following best describes the cap modification of eukaryotic mRNA?

a) Modified guanine nucleotide added to the 3' end of the transcript
b) Modified guanine nucleotide added to the 5' end of the transcript
c) String of adenine nucleotides added to the 3' end of the transcript
d) String of adenine nucleotides added to the 5' end of the transcript

50. DNA polymerase synthesizes

a) DNA in 5'-3' direction
b) DNA in 3'-5' direction
c) mRNA in 3'-5' direction
d) mRNA in 5'-3' direction

" انتهت الأسئلة "

Dr. Nemmat A. Hussein Good Luck Dr. Abeer A. Rgdi