BIOLOGY

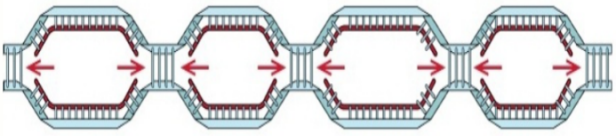
بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

Biology 101 final exam 023

Q1: The recycle of the cells organisms is called:
-Autophagy
-endocytosis
-exocytosis
-A & C
Answer: Autophagy

Q2:What is the nature of the SRP (Signal Recognition Particle)?
- Protein-DNA complex
- Protein-RNA complex
- Protein-lipid complex
- Protein-carbohydrate complex
Answer: -protein-RNA complex

Q3:Which of the following stages/steps of translation require energy:
-elongation
-termination
-aminoacyl tRNA formation
-formation of translation initiation complex
-all of them
Answer:aminoacyl tRNA formation

Q4: 

How many replication fork ?
-2
-3
-4
-8
Answer:8

Q5:Where in the chloroplast is a high concentration of protons expected?
- Stroma
- Thylakoid space
- Inner membrane
- Outer membrane
Answer:thylakoid space

Q6:Which of the following processes does not occur in linear photophosphorylation?
-O2 is released
-NADPH is oxidized
-NADPH is reduced
-ATP is synthesized
Answer: NADPH is oxidized

Q7:Which of the following processes does not occur in the Calvin cycle?
-CO2 fixation
-O2 is released
-Regeneration of CO2 acceptor
-Reduction of PGA
Answer:O2 is released

Q8:Which of the following is a gene product?
-RNA & lipids
-lipids & proteins
-RNA & proteins
Answer:RNA & proteins

Q9: What is the process of synthesizing RNA from DNA?
- Translation
- Transcription
- Replication
- Reverse transcription
Answer:transcription

Q10:Which molecules can be used in post translation modification?
-sugar
-lipids
-phosphate group
-B&C
-A,B&C
Answer:A,B&C

Q11:What is the name of the sugar that result from Calvin cycle
-sucrose
-glucose
-G3P
-pyrovate
ANSWER:G3P

Q12:Rubisco, the enzyme used in the reaction of carbon fixation, is:
-RUBP carboxylase-oxygenase
-Calvinase
- Photosynthetic carboxylase
-Carbon dioxide ligase
Answer: RUBP carboxylase-oxygenase

Q13:How many CO2 is released per glucose molecule in Pyruvate oxidation?
-0
-1
-2
-3
Answer:2

Q14:What is the net number of ATP per glucose molecule produced in glycolysis?
-1
-2
-3
-4
Answer:2

Q15:Erwin chargaf postulated that:
-the base composition is different between species
-the A and T are roughly equal, and so C and G
-the base composition is the same between species
-A & B
-B & C
Answer: B & C

Q16:What does it mean when a codon is described as redundant?
- More than one codon codes for the same amino acid
-The same codon can code for more than one amino acid
-Each codon codes for a unique amino acid
- Codons are non-functional in protein synthesis
Answer: More than one codon codes for the same amino acid

Q17: What molecules are utilized during the termination of translationand how many molecules are used ?
-1 ATP
-2 ATP
-1 GTP
-2 GTP
Answer : 2GTP

اللّٰھم ولے التوفیق

Q18:Where do fermentation and Glycolysis occur ?
-cytosol
-mitochondria matrix
-chloroplast thylakoid
Answer:cytosol

Q19:Which of the following is not a carbohydrates
-glucose
-glycine
-glycogen
-chitin
Answer: glycine

Q20:What type of bonds are present between alpha helices and beta sheets?
- Hydrogen bonds
- Ionic bonds
- Covalent bonds
- Van der Waals interactions
Answer: hydrogen bond

Q21:Which bonds determine the 3D shape of tRNA?
- Hydrogen bonds
- Ionic bonds
- Covalent bonds
- Disulfide bonds
Answer: hydrogen bond

Q22How many ATP are produced after glycolysis?
- 0 ATP
- 2 ATP
- 4 ATP
- 6 ATP
Answer: 2 ATP

Q23:Where are cristae found?
- Mitochondria
- Endoplasmic reticulum
- Golgi apparatus
- Nucleus
Answer:Mitochondria

Q24: Where does translation occur in eukaryotes?
- Nucleus
- cytosol
- Golgi apparatus
- Endoplasmic reticulum
Answer: cytosol

Q25:When a DNA strand separates into two DNA strands, what percentage of the resulting strands are parent strands?
-0%
- 25%
-50%
- 100%
answer: 50%

Q26 :Which components form the backbone of DNA molecules?
- Nitrogenous bases
-Sugar and phosphate groups
- Hydrogen bonds
- Deoxyribose sugar
Answer:Sugar and phosphate groups

Q27:Which component is not required for the initiation of the transcription complex?
-DNA template strand
- RNA polymerase enzyme
-Promoter region
- tRNA molecule
answer: tRNA molecule

Q28Which enzyme catalyzes the fixation of CO_2 in the Calvin cycle?
-ATP synthase
- Rubisco
-DNA polymerase
-RNA polymerase
answer: Rubisco

Q29:Which enzyme catalyzes the reduction of NAD+ to NADH during cellular respiration?
-Mutase
- Enolase
-Dehydrogenase
-ATP synthase
answer: Dehydrogenase

وبلُطفِ اللّٰہِ نجوُا

Q30:What is the source of hydrogen ions during the reduction of NAD+ to NADH during glycolysis?
a) Pyruvate
b) Malate
c) G3P (Glyceraldehyde-3-phosphate)
d) Acetyl-CoA
answer: G3P

Q31:Which statement is true about cholesterol?
- Only found in plant membranes
- Locates between the phospholipids in the cell membrane
-Can be found in both plant and animal membranes
-Acts as an enzyme in membrane synthesis
answer: Locates between the phospholipids in the cell membrane

Q32: Which part of the cytoskeleton is hollow?
- Actin filaments
- Intermediate filaments
- Microtubules
- Myosin filaments
answer: Microtubules

Q33: What is found on the 5' side of one DNA chain?
- Nitrogenous base
- Sugar molecule
- Phosphate group
- Hydrogen bond
answer:Phosphate group

Q34:What is the direct sugar product of Calvin cycle?
-Glucos
-Glactose
-Amylose
-G3p
-NADH
Answer:G3p

Q35 What is the number of nucleotide pairs in a coded region that encodes for 120 amino acids?
- 120 pairs
- 240 pairs
- 360 pairs
- 480 pairs
Answer: 360 pairs

سبحان اللہ وبحمدہ
سبحان اللہ العظیم

Q36: Which of the following is present in the proofreading process?
-topoisomerase
-DNA polymerase
-primase
-helicase
Answer:DNA polymerase

Q37:Which enzyme catalyzes the conversion of Fructose 6-phosphate to Fructose 1,6-bisphosphate?
-PFK
-ATP synthase
-Hexokinase
-Glucose-6-phosphatase
Answer:PFK

Made by Lejan aAdofaat

Biology 101

PAST PAPER

Final 2022

DONE BY : SADEEL MA'MON

- One of the following molecules is hydrophobic:
- A. Starch
- B. Cellulose
- C. Phospholipids
- D. Triacylgdycerol
- Ans: D

- One of these is false about Un saturated fatty acid?
- A. they have a carboxyl group
- B. Found in plant oils
- C. found in most animals like cows
- D. have a double bonds
- Ans: c

- A polyribosome is :
- A. A ribosome made of more than 2 amino acid
- B. Multiple ribosomes associated with one chromosome
- C. Multiple ribosomes that translate one mRNA at the same time
- D. Non of the above
- Ans: c

- WATER is perfect in evaporating cooling
- A. True
- B. False
- Ans: a

- What is the length of the DNA Coding region that encodes to 120 amino acid?
- A.120bp
- B. 360bp
- Ans: B

- Could we consider cholesterol as a triglyceride?
- Ans: no, it's steroid

- What type of enzyme is rubisco?
- Answer: carboxylase

- What is coupled by the sucrose pump?
- Ans :

- Intermediate filament is which junction?
- Answer :desmosomes

- What is not included in the endomembrane system
- Ans : peroxisome

- which one is not considered an organelle:
- A.plastids
- B. mitochondria
- C. nucleoid
- D. lysosomes
- E. Golgi apparatus
- Ans: c

- which pigment works for cyanobacteria under shade/no light?
- Ans : chlorophyll f

- complementary of 5’ ATCGC 3’is ?
- Ans : 3’ TAGCG 5’

- in plant cells protons can be found in?
- Ans : thylakoid space

- in plant cells atp is produced in?
- Ans : stroma

- hydration cell surrounds :
- Ans: dissolved ions

- pyruvate is
- A. the final product of glycolysis
- B. input of the citric acid cycle
- C. has six carbons
- D. product of oxidative phosphorylation
- E. product of chemiosmosis
- Ans: a

- na-k pump uses ATP to ?
- a) bind 3 k+
- b)bind 2 Na+
- c) change pumps shape by transferring a phosphate group to the pump
- d) non of the above
- Ans: a

- simple diffusion and facilitated diffusion both:
- a) transfer molecules against heir concentration gradient
- b) transfer molecules down their concentration gradient
- c) require energy
- d)only in plant cells
- Ans : b

- a mutation that replaces an amino acid with another is called:
- A.frameshift
- B.nonsense
- C. missense
- D. silent
- E.deletion
- Ans: c

- the flexible base paring of the third nucleotide base of a codon is called :
- Ans: wobble

- the rate of transcription in eukaryotes is :
- Ans : 40 nucleotides per second

- the electron transport chain reduces :
- Ans : NADP+ to NADPH

SOME NOTES FROM 22 STUDENTS:

10- ‼️ ‼️ ‼️ ‼️ ‼️

سؤال غريب

Type of chlorophyll that cyanobacterium use in shaded conditions is?
1- chlorophyll a
2-chlorophyll b

3-chlorophyll f ✅✅

4- chlorophyll g

[redacted]

1-اجا سؤال عن نوع انزيم ال rubisco والجواب carboxylase.

2-اجا سؤال عن ال

rate of transcription for eukaryots?

والجواب nucleotide/sec 40

3- اجا سؤال عن ال

translation machinery includes?

واظن الجواب tRNA+rRNA+mRNA

4-وانه كمية الطاقة اللي لازم تصرفها على ال disassembly

الجواب 2GTP

5- without one of the following translation can't start?

الجواب the codon AUG

6- where can we find the higher concentration of protons (H+) during the process of photosynthesis?

الجواب in the thylakoid space

7-where does ATP forms in photosynthesis?

الجواب stroma

8- سؤال عن أبعاد ال DNA

9- سؤال عن القاعدتين اللي حطهم chargaff

- اللهم عليك بأعدائك أعداء الدين اللهم رد عنا كيدهم وفل حدهم وأزل دولتهم وأذهب عن أرضك سلطانهم ولا تدع لهم سبيلاً على أحد من عبادك المؤمنين اللهم انا نجعلك في نحورهم ونعوذ بك من شرورهم اللهم منزل الكتاب ومجرى السحاب وهازم الأحزاب اهزمهم و انصرنا عليهم اللهم أنزل عليهم بأسك الذى لا يرد عن القوم المجرمين اللهم زلزل أقدامهم ونكس أعلامهم واذهب ريحهم اللهم آمين.
- وفقكم الله وسدد خطاكم وبارك لكم في علمكم، وفقكم الله لما يحب ويرضى 👏👏

Final 022

1.What is the similarity between the structures of RNA and DNA?
Answer: The similarity lies in the orientation of the sugar-phosphate backbone, where nucleotides are linked by phosphodiester bonds between the 3' carbon of one sugar and the 5' carbon of the next.

2. Which of the following statements about unsaturated fatty acids is false?
A) They have a carboxyl group.
B) They are found in plant oils.
C) They are found in most animals, such as cows.
D) They contain double bonds.
Correct Answer: C) They are found in most animals, such as cows.
Explanation: Unsaturated fatty acids are primarily found in plants, while saturated fatty acids are more common in animal fats.

3. Is the statement "Water is perfect for evaporative cooling" true or false?
Correct Answer: True
Explanation: Water has a high heat of vaporization, which makes it effective for evaporative cooling.

4. What is the length of the DNA coding region that encodes 120 amino acids?
Correct Answer: 360 base pairs (bp)
Explanation: Each amino acid is encoded by three nucleotides (a codon), so 120 amino acids require 360 nucleotides.

5. What is minimal medium?
Correct Answer: A simple solution containing minimal nutrients required for growth.
Explanation: Minimal medium provides the essential nutrients needed for microorganisms to grow.

6. What type of enzyme is rubisco?
Correct Answer: Carboxylase
Explanation: Rubisco catalyzes the reaction between ribulose bisphosphate and carbon dioxide in the first step of photosynthesis.

7. What does the sucrose pump couple with?
Correct Answer: It couples sucrose translocation across the plasma membrane to the proton

motive force generated by H^+-pumping ATPase.
Explanation: This coupling helps in the active transport of sucrose into the cell.

8. Is cholesterol a triglyceride?
Correct Answer: False; it's a steroid.
Explanation: Cholesterol is classified as a sterol, not a triglyceride, which is a type of fat.

9. Osmosis is the diffusion of:
A) Water
B) Water and ions
C) Cholesterol
D) Protein
E) Water and protein
Correct Answer: A) Water
Explanation: Osmosis specifically refers to the movement of water across a semi-permeable membrane.

10. Is it true that intermediate filaments anchor into desmosomes?
Correct Answer: True
Explanation: Intermediate filaments provide structural support and anchor into desmosomes, which link adjacent cells.

11. Which of the following is not a component of the extracellular matrix (ECM) in animal tissues?
A) Proteoglycans
B) Fibronectin
C) Collagens
D) Cellulose
E) All of the above
Correct Answer: D) Cellulose
Explanation: Cellulose is primarily found in plant cell walls, not in animal ECM.

12. Which of the following is not included in the endomembrane system?
Correct Answer: Peroxisome
Explanation: The endomembrane system includes structures like the ER, Golgi apparatus, and lysosomes, but not peroxisomes.

13. Which of the following is not considered an organelle?

A) Plastids
B) Mitochondria
C) Nucleoid
D) Lysosomes
E) Golgi apparatus
Correct Answer: C) Nucleoid
Explanation: The nucleoid is a region in prokaryotic cells containing genetic material, but it's not membrane-bound like organelles.

14. What type of chlorophyll do cyanobacteria use in shaded conditions?
A) Chlorophyll a
B) Chlorophyll b
C) Chlorophyll f
D) Chlorophyll g
Correct Answer: C) Chlorophyll f
Explanation: Chlorophyll f is adapted for low-light conditions in cyanobacteria.

15. What is the complementary sequence of 5' ATCGC 3'?
Correct Answer: 3' TAGCG 5'
Explanation: The complementary base pairing rules dictate that A pairs with T and C pairs with G.

16. Where is the higher concentration of protons (H^+) found during photosynthesis?
Correct Answer: Thylakoid space
Explanation: Protons are pumped into the thylakoid space during the light reactions of photosynthesis.

17. Where is ATP formed during photosynthesis?
Correct Answer: Stroma
Explanation: ATP is synthesized in the stroma during the Calvin cycle.

18. What does a hydration shell surround?
Correct Answer: Dissolved ions
Explanation: A hydration shell is formed when water molecules surround ions or polar molecules.

19. Which of the following molecules is hydrophobic?
A) Starch
B) Cellulose

C) NaCl
D) Phospholipids
E) Triacylglycerol
Correct Answer: E) Triacylglycerol
Explanation: Triacylglycerols are fats that do not mix with water due to their hydrophobic nature.

20. Which of the following molecules is hydrophilic?
Correct Answer: Cellulose
Explanation: Cellulose has many hydroxyl groups, making it soluble in water.

21. Pyruvate is:
A) The final product of glycolysis
B) An input of the citric acid cycle
C) A six-carbon compound
D) A product of oxidative phosphorylation
E) A product of chemiosmosis
Correct Answer: A) The final product of glycolysis
Explanation: Pyruvate is produced at the end of glycolysis and enters the citric acid cycle.

22. What does the Na-K pump use ATP for?
Correct Answer: To change the pump's shape by transferring a phosphate group to it.
Explanation: This energy is necessary for the active transport of sodium and potassium ions.

23. Simple diffusion and facilitated diffusion both:
A) Transfer molecules against their concentration gradient
B) Transfer molecules down their concentration gradient
C) Require energy
D) Occur only in plant cells
Correct Answer: B) Transfer molecules down their concentration gradient
Explanation: Both processes involve movement from areas of high concentration to areas of low concentration.

24. A mutation that replaces one amino acid with another is called:
A) Frameshift
B) Nonsense
C) Missense
D) Silent
E) Deletion

Correct Answer: C) Missense
Explanation: A missense mutation results in the substitution of one amino acid for another in a protein.

25. What is a polyribosome?
A) A ribosome made of more than 2 amino acids
B) Multiple ribosomes associated with one mRNA
C) Multiple ribosomes that translate one mRNA simultaneously
Correct Answer: C) Multiple ribosomes that translate one mRNA at the same time.
Explanation: Polyribosomes allow for the efficient translation of a single mRNA molecule.

26. How many stop codons are there?
Correct Answer: There are three stop codons.
Explanation: The stop codons (UAA, UAG, UGA) signal the termination of protein synthesis.

27. The flexible base pairing of the third nucleotide base of a codon is called:
Correct Answer: Wobble
Explanation: This phenomenon allows for some variation in the third base without altering the amino acid.

28. The rate of transcription in eukaryotes is:
Correct Answer: 40 nucleotides per second.
Explanation: This is an average rate for RNA polymerase during transcription.

29. The electron transport chain reduces:
Correct Answer: $NADP^+$ to NADPH.
Explanation: This reduction occurs in the light reactions of photosynthesis.

30. Which of the following is a negatively charged amino acid?
Correct Answer: Aspartic acid (Asp) and glutamic acid (Glu).
Explanation: Both of these amino acids have carboxyl groups that can donate protons, giving them a negative charge.

31. What are the main components involved in the translation machinery?
Correct Answer: tRNA, rRNA, and mRNA.
Explanation: These molecules play critical roles in the synthesis of proteins.

32. Without which of the following cannot translation start?

Correct Answer: The codon AUG.
Explanation: AUG is the start codon that signals the beginning of translation.

33. **According to Chargaff's rules, which statement is true?**

A) The amount of adenine (A) is equal to the amount of thymine (C) in a DNA molecule.
B) The amount of guanine (G) is equal to the amount of cytosine (A) in a DNA molecule.
C) The amount of adenine (A) is equal to the amount of thymine (T) in a DNA molecule.
D) The amount of guanine (G) is equal to the amount of cytosine (T) in a DNA molecule.
E) The amount of guanine (G) is equal to the amount of cytosine (C) in a DNA molecule.
Correct Answer: E) The amount of guanine (G) is equal to the amount of cytosine (C) in a DNA molecule.
Explanation: Chargaff's rules state that in a double-stranded DNA molecule, the amount of adenine (A) is equal to thymine (T), and the amount of guanine (G) is equal to cytosine (C).

Bio 101 final

Done by Dima Alrafaiah

1. Which of the following is not associated with microfilaments?
    A. muscle movement
    B. cytoplasmic streaming
    C. pseudopodia
    D. centriole
    E. maintenance of cell shape

2. Which of the following processes includes all the others?
    A. osmosis
    B. diffusion of a solute across a membrane
    C. passive
    D. transport of an ion down its electrochemical gradient
    E. diffusion of oxygen across cell membrane

3. By which transport mechanism glucose diffuses down its gradient?
    A. simple diffusion
    B. phagocytosis
    C. active transport pumps
    D. exocytosis
    E. facilitated diffusion

4. The active site of an enzyme is not…….
    A. the region where the substrate bind
    B. the region where the competitive inhibitor bind
    C. a specific site
    D. composed of polysaccharide
    E. a catalytic site

5. A cell may control its metabolism through:
    A. allosteric regulation
    B. cooperativity
    C. feed-back inhibition
    D. controlling gene expression
    E. all of the above

6. Most of aerobic cellular respiration stages in eukaryotic cells is completed in the……
    A. nucleus
    B. mitochondrion
    C. plasma membrane
    D. cytoplasm
    E. endoplasmic reticulum

7. During the stage of oxidative phosphorylation, the following event(s) happen:
    A. ATP, NADH, $FADH_2$, CO_2, and water are formed
    B. glucose is split into two pyruvates
    C. NAD^+ regenerated, two ATP net
    D. H^+ flows through ATP synthases
    E. NAD^+ is reduced to NADH

8. In lactic acid fermentation,_____ is the final acceptor of electrons stripped from glucose
    A. oxygen
    B. pyruvate
    C. acetaldehyde
    D. sulfate
    E. NAD^+

9. Which of the following is/are used in the reduction phase of the Calvin cycle?
    A. CO_2
    B. RuBP
    C. ATP
    D. NADPH
    E. ATP and NADPH

10. What catalyses' the carbon fixation phase of the Calvin cycle?
    A. P700
    B. kinase
    C. rubisco
    D. ATP synthase
    E. regenerase

11. Which of the following is the ultimate source of the carbon in the sugar produced during Calvin cycle?
    A. CO_2
    B. water
    C. ATP
    D. NADPH
    E. all of the above

12. Which of the following does not occur during the Calvin cycle?
    A. Carbon fixation
    B. oxidation of NADPH
    C. release of oxygen
    D. regeneration of the CO_2 acceptor
    E. consumption of ATP

13. Hershey and chase made use of which of the following facts in their experiment?
    A. DNA contains nitrogen, whereas protein does not contain nitrogen.
    B. DNA contains phosphorus, whereas protein contains sulfur.
    C. DNA contains sulfur, whereas protein does not contain sulfur.
    D. DNA contains purines, whereas protein contains pyrimidines.
    E. DNA contains pyrimidines, whereas protein contains purines.

14. Griffith experiments on R and S types of *streptococcus pneumonia* emphasized the concept of:
    A. Transformation
    B. translation
    C. transcription
    D. replication
    E. regeneration

15. DNA polymerase I …
    A. joins Okazaki fragments
    B. synthesizes primers
    C. synthesizes tRNA
    D. removes primers and replaces them with DNA
    E. all of the above

16. Which of the following statement is correct about DNA replication?
    A. DNA replication proceeds in both directions of the origin of replication
    B. DNA replication is dispersive
    C. topoisomerase unwinds the double helix at the replication fork

17. Which DNA strand is synthesized continuously towards the replication fork?
    A. lagging strand
    B. leading strand
    C. Okazaki strands
    D. template strand
    E. 30nm fiber

18. How many base pairs exist in one full turn of the DNA double helix?

A. 10
B. 5
C. 8
D. 12
E. 14

19. What determines the nucleotide sequence of the newly synthesized strand strand during DNA replication?
    A. the type of DNA polymerase catalyzing the reaction
    B. the relative amounts of the four nucleoside triphosphates in the cell
    C. the nucleotide sequence of the template strand
    D. the type of primase used in the reaction
    E. the arrangement of histones in the sugar phosphate backbone

20. Which of the following synthesizes short segments of RNA needed for the synthesis of DNA strands?
    A. Helicase
    B. DNA polymerase III
    C. Ligase
    D. DNA polymerase I
    E. primase

21. In a nucleosome, the DNA is wrapped around :
    A. polymerase molecules
    B. ribosomes.
    C. histones
    D. a thymine dimer
    E. spliceosome

22. Which of the following help to hold the DNA strands apart while they are being replicated?
    A. primase
    B. ligase
    C. DNA polymerase
    D. single-strand binding proteins
    E. exonuclease

23. What are the coding segments of a stretch of eukaryotic DNA called?
    A. Introns
    B. exons
    C. start codons
    D. replicons
    E. poly A tail

24. Transcription in eukaryotes requires which of the following in addition to RNA polymerase?

A. the protein product of the promoter
B. start and stop codons
C. ribosomes and tRNA
D. transcription factors
E. aminoacyl synthetase

25. The template DNA that gives the following RNA strand 5’ AAA AUG AGU AAG 3’ is
    A. 3’ TTT ATG TGC TTC 5’
    B. 3’ TTT TAC TCA TTC 5’
    C. 3’ UUU TAC UCA UUC 5’
    D. 3’ AAA ATG AGT AAG 5’
    E. 5’ TTT TAC TCA TTC 3’

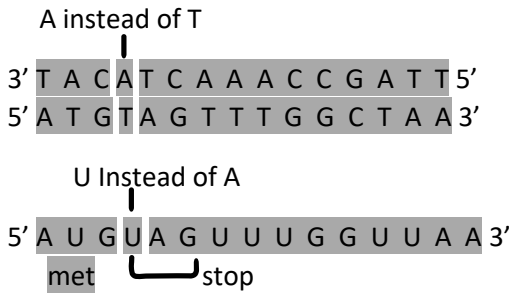
26. During splicing of pre mRNA, which molecular component of the spliceosome catalyzes the excision reaction?
    A. protein
    B. DNA
    C. RNA
    D. lipid
    E. sugar

27. Which statement is INCORRECT?
    A. missense mutation is the substitution that change one amino acid to another one
    B. base-pair substitution can cause a major change in a protein
    C. nucleotide analogs pair incorrectly during DNA replication
    D. point mutation can change a codon for an amino acid into a stop codon
    E. a frameshift mutation occurs whenever the number of nucleotide inserted or deleted is a multiple of three

28. In a gene, the change in a base pair that does not cause a change in the sequence of the produced polypeptide is known as a
    A. frameshift mutation
    B. silent mutation
    C. missense mutation
    D. nonsense mutation
    E. none of the above

29. Polyribosomes are
    A. groups of ribosomes reading a single mRNA simultaneously
    B. ribosomes containing more than two subunits
    C. multiple copies of ribosomes associated with giant chromosomes
    D. aggregations of vesicle containing ribosomal RNA
    E. ribosomes associated with more than one tRNA

30. What type of mutation is shown in the figure below?



A. silent mutation
B. nonsense mutation
C. Missense mutation
D. frameshift mutation
E. none of the above

31. Functional ribosomes are directed to the ER membrane by
A. a specific characteristic of the large ribosomal subunit
B. a signal-recognition particle
C. a channel in the nucleus
D. a chemical signal given off by the ER
E. the sequence of bases on the 5' UTR of the mRNA

32. All of the following are <u>directly</u> involved in translation EXCEPT
A. ribosomes
B. tRNA
C. amino acids
D. DNA
E. mRNA

33. A promoter is a
A. binding site for DNA polymerase
B. binding site for RNA polymerase
C. start signal for replication
D. stop signal for transcription
E. a translation initiation factor

34. During translation which ribosomal subunit is the first to attach to the mRNA strand?
A. Top
B. bottom
C. small
D. large
E. snRNPs

35. After mRNA (5' -AUGUAUACAGCACAUCGAUGACAA- 3') translation is completed, what will be the first amino acid and the total number of amino acids in the synthesized polypeptide?
A. Methionine. 9 amino acids
B. Methionine, 7 amino acids
C. arginine, 8 amino acids

D. methionine, 6 amino acids
E. methionine, 8 amino acids

36. What is the property of water that help in transport of water against gravity from the roots in plant?
    A. cohesion alone
    B. adhesion alone
    C. specific heat
    D. adhesion and cohesion
    E. water expansion

37. Which of the following molecules contain beta glycosidic linkage?
    A. amylose
    B. glycogen
    C. amylopectin
    D. collagen
    E. cellulose

38. Which of the following does not apply to steroids?
    A. some are hormones
    B. composed of fatty acids
    C. have four rings structure
    D. water insoluble
    E. may be present In the plasma membrane

39. Starch and cellulose are alike in that both are:
    A. polysaccharides
    B. found only in animal cells
    C. composed of identical subunits
    D. contain non-polar, fatty acid side chains
    E. both are storage polysaccharide in plants

40. The cells synthesizing steroid hormones are rich in:
    A. rough ER
    B. smooth ER
    C. lysosome
    D. contractile vacuoles
    E. peroxisomes

41. One of the following is a function of Golgi apparatus……..
    A. synthesis of steroid hormones
    B. detoxification of many organic compounds, like barbiturates and ethanol
    C. release of glucose into the bloodstream
    D. sequestration of calcium Ca^{+2} ions
    E. sorting and packaging of secretory proteins

42. The formation of thymine dimmers results from which of the following?
    A. Exposure to infrared radiation
    B. Exposure to gamma radiation
    C. Exposure to ultraviolet radiation
    D. Exposure to visible light
    E. Exposure to both A and B

43. What are the components of a spliceosome?
    A.DNA and protein
    B. protein and small nuclear RNA
    C. Exons and introns
    D. proteins and mRNA
    E. coding and noncoding RNAs

44. Which of the following is a function of a signal peptide?
    A. to direct an mRNA molecule into Golgi apparatus
    B. to bind RNA polymerase to DNA and initiate transcription
    C. to terminate translation of the messenger RNA
    D. to target polypeptides to the endoplasmic reticulum
    E. to signal the initiation of transcription

45. Which of the following is mis-matched?
    A. splicing: Eukaryotic premRNA
    B. lagging strand : Okazaki fragments
    C. TATA box: DNA polymerase binding
    D. (G=C) and (A=T): chargaff's rules
    E. DNA: double helix

46. According to the following mRNA 5' -AUCUCAAAAAAGGAAUACCGGCCC- 3' , what is the first coded amino acid? And how many amino acids will be in the polypeptide?
    A. Methionine , 9 amino acids
    B. methionine, 6 amino acids
    C. methionine , 5 amino acids
    D. leucine, 9 amino acids
    E. methionine , 8 amino acids

47. An signal recognition particle (SRP) is targeting for what location?
    A. Cytosol
    B. nucleus
    C. nucleolus
    D. smooth ER
    E. rough ER

48. The steps involve in sequence of translation elongation circle include…….
    A. codon recognition, peptide bond formation, translocation
    B. initiation, elongation, termination
    C. initiation , peptide bond formation, termination
    D. codon recognition, termination , initiation
    E. peptide bond formation, translocation, termination

49. As a ribosome translocate along an mRNA molecule by one codon, which of the following occurs?
    A. The tRNA that was in the A site moves into the P site
    B. the tRNA that was in the P site moves into the A site
    C. the tRNA that was in the A site moves into the E site and is released
    D. the tRNA that was in the A site departs from the ribosome via a tunnel
    E. the polypeptide enters the E site

50. Which of the following is not an mRNA codon
    A. UUG
    B. UCU
    C. TAG
    D. UUU
    E. AUG

51. Which component is the last to join the initiation complex during the initiation of translation?
    A. the mRNA molecule
    B. the small ribosomal subunit
    C. the large ribosomal subunit
    D. the initiator tRNA
    E. both B and C

52. A nucleotide-pair substitution is
    A. insertion of nucleotide pair in a gene
    B. deletion of nucleotide pair in a gene
    C. replacement of nucleotide pair with another pair of nucleotides
    D. replacement of nucleotide pair with nucleotide analogs
    E. C and D are correct

53. As a molecule of mRNA is moved through a ribosome, _____ are_____into_____, one by one until the top codon is reached.
    A. codons, translated, amino acids
    B. codons, transcribed, amino acids
    C. codons, replicated , amino acids
    D. codons, translated , nucleotides
    E. codons, transcribed, nucleotides

54. The change in a nucleotide pair may transform one codon into another that is translated into the same amino acid is described as……
    A. silent mutation
    B. nonsense mutation
    C. missense mutation
    D. frameshift mutation
    E. all of the above

55. The high specific heat of water is responsible for the following, except:
    A. helps moderate earth's climate
    B. stabilizes ocean temperature
    C. enables organisms to resist changes in their own temperature
    D. large amount of heat is required to raise the temperature of water
    E. hydrogen bond formation between water molecules

56. Which of the following molecules is not normally found in a ribozyme?
    A. Uracil
    B. Thiamine
    C. guanine
    D. Cytosine
    E. none of the following

57. When a protein is boiled, it loses all levels of organization. When this happens, the protein is said to be :
    A. Hydrolyzed
    B. denatured
    C. dehydrated
    D. plasmolyzed

58. A phospholipid molecule has:
    A. two hydrophobic tails and one hydrophilic head
    B. two hydrophilic tails and one hydrophobic head
    C. one hydrophobic tail and one phosphate group
    D. three fatty acids and one phosphate group
    E. two phosphate groups and one fatty acid

59. What type of protein fibers make up the nuclear lamina?
    A. Microfilaments
    B. intermediate filaments
    C. actin filaments
    D. microtubules
    E. fibronectins

60. Which cytoskeletal element is responsibly for the movement of chromosomes during cell division?
    A. microfilaments
    B. intermediate filaments
    C. actin filaments
    D. microtubules
    E. fibronectins

1. d
2. c
3. e
4. d
5. e
6. b
7. d
8. b
9. e
10. c
11. a
12. c
13. b
14. a
15. d
16. a
17. b
18. a
19. c
20. e
21. c
22. d
23. b
24. d
25. b
26. c
27. e
28. b
29. a
30. b
31. b
32. d
33. b
34. c
35. d
36. d
37. e
38. b
39. a
40. b
41. e
42. c
43. b
44. d
45. c
46. e
47. e
48. a
49. a
50. c
51. e
52. e
53. a
54. a

WISH YOU ALL THE BEST.

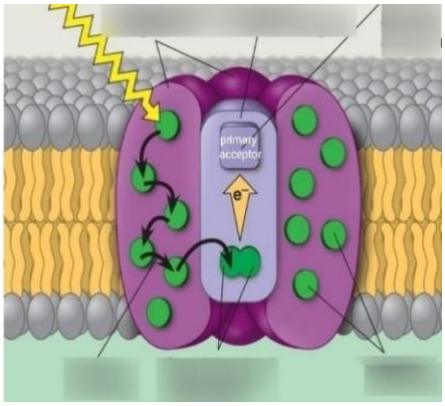
{أَمَّنْ هُوَ قَانِتٌ آنَاءَ اللَّيْلِ سَاجِدًا وَقَائِمًا يَحْذَرُ الْآخِرَةَ وَيَرْجُو رَحْمَةَ رَبِّهِ ۗ قُلْ هَلْ يَسْتَوِي الَّذِينَ يَعْلَمُونَ وَالَّذِينَ لَا يَعْلَمُونَ ۗ إِنَّمَا يَتَذَكَّرُ أُولُو الْأَلْبَابِ} [سورة الزمر: 9]

PAST PAPERS

Final 018 - 020

CH 11 :

1) The figure represents:



A. ATP synthase

B. Photosystem

C. Channel protein

D. Plastoquinone (Pq)

E. None of the above

2) The CO_2 acceptor in Calvin cycle is:

A. RUBP

B. Rubisco

C. Oxaloacetate

D. Carbon monoxide

E. None of the above

3) In the cyclic electron flow during photosystem:

A. No NADPH is produced

B. No O2 is produced

C. Only ATP is produced

D. Both NADPH and ATP are produced

E. A, B and C are correct

4) If thylakoid membrane became leaky to H^+, which of the following processes will affected most?

A. Absorption of photons

B. Linear electron flow

C. Cyclic electron flow

D. The synthesis of ATP

E. Splitting of water molecules

5) Which molecule is the CO2 acceptor in the first step of Calvin cycle:

A. 3-phosphoglycerate

B. Ribulose bisphosphate

C. G3P

D. Rubisco

E. Acetyl Co-A

6) Which of the following are products of the light reactions of Photosynthesis that are utilized in the Calvin cycle?

A. CO2 and glucose

B. H20 and O2

C. ADP, Pi, and NADP+

D. Electrons and H+

E. ATP and NADPH

7) Where does the Calvin cycle take place?

A. Stroma of the chloroplast

B. Thylakoid membrane

C. Cytoplasm surrounding the chloroplast

D. Chlorophyll molecule

E. Outer membrane of the chloroplast

قال رسول الله صلّى الله عليه وسلّم:

(فو اللَّهِ لأنْ يهْدِيَ اللَّه بِكَ رجُلًا واحِدًا خَيْرٌ لكَ من أنْ يكونَ لكَ حُمْرِ النَّعم)

8) The letter X represents?

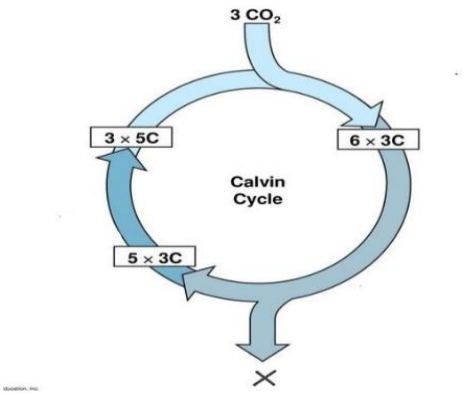
A. G3P

B. RuBP

C. glucose

D. Oxaloacetate

E. None of the above



9) In a plant cell, where are the ATP synthase complexes located?

A. Thylakoid membrane

B. Plasma membrane

C. Inner mitochondrial membrane

D. A and C

E. A, B, and C

10) The splitting of carbon dioxide to form oxygen gas and carbon compounds occurs during:

A. Photosynthesis.

B. Respiration.

C. Both photosynthesis and respiration.

D. Neither photosynthesis nor respiration.

E. Photorespiration.

11) Generation of proton gradients across membranes occurs during:

A. Photosynthesis.

B. Respiration.

C. Both photosynthesis and respiration.

D. Neither photosynthesis nor respiration.

E. Photorespiration

12) In mechanism, photophosphorylation is most similar to

A. Substrate - level phosphorylation in glycolysis

B. Oxidative phosphorylation in cellular respiration.

C. The Calvin cycle.

D. Carbon fixation.

E. Reduction of NADP.

13) Which of the following does not occur during the Calvin cycle?

A. Carbon fixation

B. Oxidation of NADPH

C. Release of oxygen

D. Regeneration of the CO_2 acceptor

E. Consumption of ATP

14) The molecule that functions as the reducing agent (Electron donor) in a redox (Oxidation - Reduction) reaction:

A. Gain electrons and gains potential energy

B. Loses electrons and loses potential energy

C. Gains electrons and loses potential energy

D. Loses electrons and gains potential energy

E. None of the above

15) An overall result of photosynthesis in plants is the use of electrons from water to reduce:

A. Glucose

B. Carbon dioxide

C. Oxygen

D. Chlorophyll

E. NADPH

16) The reaction center chlorophyll of photosystem I is known as P700 because:

A. There are 700 chlorophyll molecules in the center.

B. This pigment is best at absorbing light with a wavelength of 700 nm.

C. There are 700 photosystem I components to each chloroplast.

D. It absorbs 700 photons per microsecond.

E. The plastoquinone reflects light with a wavelength of 700

17) What are the products of linear photophosphorylation?

A. Heat and fluorescence

B. ATP and P700

C. ATP and NADPH

D. ADP and NADP

E. P700 and P680

18) In photosynthesis, the chemiosmosis production of ATP:

A. Is done by Calvin cycle

B. Require the input of NADPH

C. Is typically similar to ATP production of ATP in mitochondria

D. A and B

E. None of the above

19) In the light reactions in photosynthesis, the final acceptor of both electrons and protons is:

A. NAD^+

B. $NADP^+$

C. The primary electron acceptor

D. B and C

E. Either A or B

بقدر الكدِّ تكتسبُ المعالي ** ومن طلب العلا سهر الليالي
ومن رام العلا من غير كدٍّ ** أضاع العمر في طلب المحال
تروم العزَّ ثم تنام ليلاً ** يغوص البحر من طلب اللآلي

20) In a photosystem, clusters of chlorophyll a, chlorophyll b, carotenoids pigments in addition to proteins collectively make:

A. The light harvesting complexes

B. The reaction center

C. The primary electron acceptor

D. P680 and P700

E. None of those

21) Which is the correct order for the stages of the Calvin cycle?

A. Carbon fixation, Regeneration, Reduction

B. Regeneration, Carbon fixation, Reduction

C. Reduction, Carbon fixation, Regeneration

D. Carbon fixation, Reduction, Regeneration

E. None of these is correct

22) Which of the following is the BEST lights used for photosynthesis?

A. Green and red

B. Red and violet - blue

C. Green and violet blue

D. Red and yellow

E. Orange and yellow

23) Synthesis of one molecule of G3P needs:

A. 9 NADPH molecules

B. 9 NADPH and 6 ATP

C. 6 NADPH and 9 ATP

D. Fixation of 3 CO_2 molecules, 6 NADPH, 9 ATP

E. Fixation of 3 CO_2 molecules, 9 NADPH, 6 ATP

24) How is oxygen produced during photosynthesis?

A. Split of CO_2

B. Split of H_2O

C. Split of H_2S

D. Krebs cycle

E. Cyclic electron flow

25) The part of chlorophyll molecule which absorbs light is:

A. Porphyrin ring

B. Hydrocarbon tail

C. Mg atom

D. A and B

E. None of the above

26) Organisms capable of carrying out photosynthesis are described as:

A. Phototroph

B. Heterotroph

C. Chemotrophic

D. Decomposer

E. Parasitic

27) The correct sequential flow of electrons from PSI to PSII is:

A. PSII – Pq – Cytochrome – Pc – PSI

B. Pq – PSII – Cytochrome – PSI – Pc

C. Pc – PSII – Cytochrome – PSI – Pq

D. PSI – Pq – Cytochrome – Pc – PSII

E. PSI – Pc – Cytochrome – Pq – PSII

28) When water splits in the process of photosynthesis, what it does supply to oxidize P680:

A. Electrons

B. Hydrogen

C. Carbon dioxide

D. Oxygen

E. ATP

29) In photosynthesis in plants, the transfer of electrons through electron transport chain provides energy to:

A. Pump protons across intermembrane space

B. Pump protons across thylakoid membrane

C. Pump protons into the stroma

D. Pump protons into the matrix

E. None of the above

30) The electrons lost from the reaction center pigment of phosphorylation II are replaced by electrons from:

A. ATP

B. Co2

C. H2O

D. NADPH

E. P700

من عرف قدر الأمر، هان عليه ما يبذل فيه

Answers:

1	B	**11**	C	**21**	D
2	A	**12**	B	**22**	B
3	E	**13**	C	**23**	D
4	D	**14**	B	**24**	B
5	B	**15**	B	**25**	A
6	E	**16**	B	**26**	A
7	A	**17**	C	**27**	A
8	A	**18**	C	**28**	A
9	D	**19**	B	**29**	B
10	D	**20**	A	**30**	C

يا عظيم الهمة لا يضرنّك التفرّد ** فإن طرق العلاء قليلة الإيناس

{أَمْ حَسِبْتُمْ أَن تَدْخُلُوا الْجَنَّةَ وَلَمَّا يَعْلَمِ اللَّهُ الَّذِينَ جَاهَدُوا مِنكُمْ وَيَعْلَمَ الصَّابِرِينَ}
[سورة آل عمران: 142]

CH 16 :

1) Which of the following true about leading strand?
   A. It needs only one primer
   B. It is synthesized continuously
   C. It is synthesized as a series of segments called the Okazaki fragments
   D. It is elongated in 3' to 5' direction
   E. Only A and B are correct

2) Synthesis of new DNA strand begins with:
   A. An RNA primer
   B. DNA primer
   C. Okazaki fragment
   D. Thymine dimer
   E. DNA ligase

3) The radioactive isotope P32 labels the T2 phage's:
   A. DNA
   B. Tails
   C. Proteins
   D. Heat
   E. Base plate

4) The enzyme that breaks, swivels, and rejoin the parental strands of DNA is:
   A. Helicase
   B. DNA polymerase I
   C. DNA ligase
   D. Primase
   E. Topoisomerase

5) In this figure, the distance represented by letter (X):

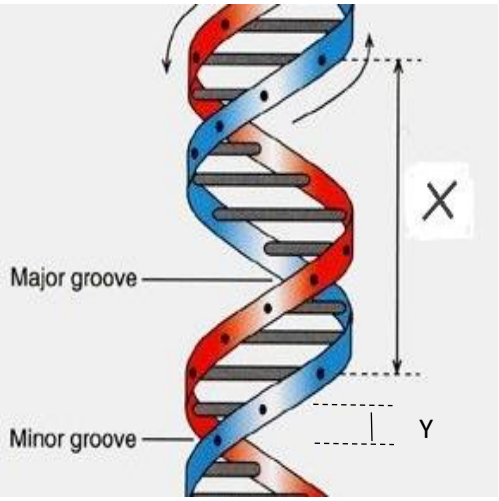
A. 0.34 nm

B. 34 nm

C. 3.4 nm

D. 1 nm

E. 2 nm



6) The letter (Y) shown in the figure equals:

A. 0.34 nm

B. 34 nm

C. 3.4 nm

D. 1 nm

E. 2 nm

7) What kind of chemical bond is found between paired bases of the DNA double helix?

A. Hydrogen

B. Ionic

C. Covalent

D. Sulfhydryl

E. Phosphodiester

8) Which of the following can be said to be semiconservative process?

A. Translation

B. Transcription

C. Replication

D. Transduction

E. Translation

قال رسول الله صلّى الله عليه وسلّم:

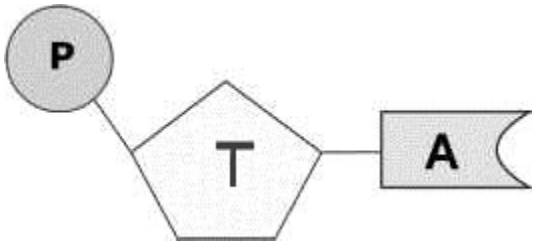
(سَلوا اللهَ علمًا نافعًا ، و تعوَّذوا باللهِ من علمٍ لا ينفَعُ).

9) Which of the following represent the sugar of nucleotide?

A. P

B. T

C. A



10) Which chemical group is at the 5' end of a single polynucleotide strand?

A. Hydroxyl group

B. Phosphate group

C. Diester group

D. Nitrogen group

E. None of the above

11) The molecule shown in the figure is:

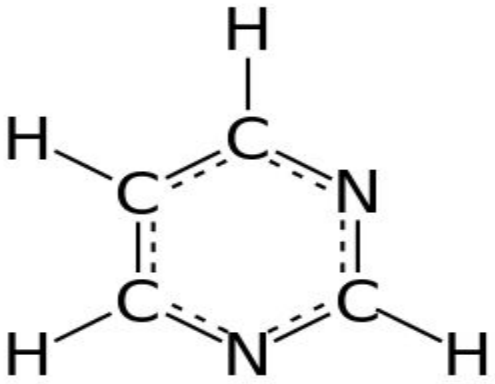
A. Purine base

B. Pyrimidine base

C. Sugar

D. Fatty acid

E. Amino acid



12) Cytosine makes up 38% of the nucleotide bases in a sample of DNA, what the percentage of the thymine in this sample will be?

A. 12

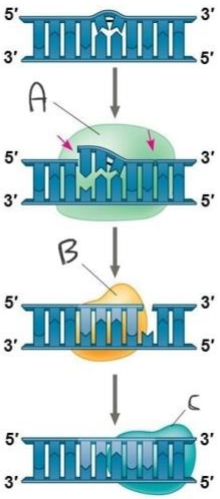
B. 24

C. 31

D. 38

E. It cannot be determined

13) In this figure, which enzyme represents the enzyme DNA polymerase?



A. A

B. B

C. C

D. None of the above

14) DNA replication begins ----

A. At the replication fork

B. At the lagging strand

C. At the origin of replication

D. At the start codon

E. In the cytoplasm

15) A DNA strand grows only in 5’ to 3’ direction because:

A. DNA polymerase can only add nucleotides to the 3’ end of the growing strand

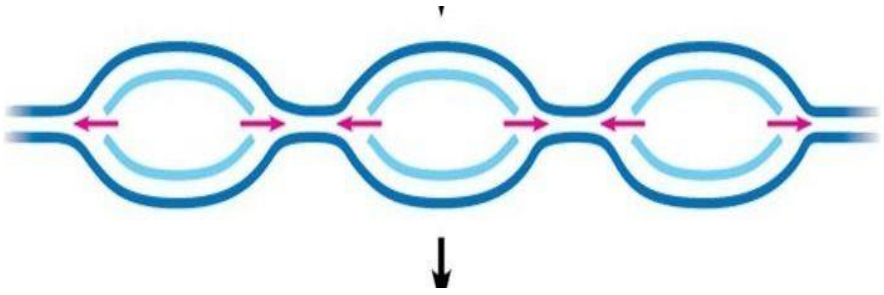
B. DNA polymerase can only add nucleotides to the 5’ end of the growing strand

C. The DNA molecule only unwinds in the 5’ to 3’ direction

D. DNA polymerase requires the addition of a starter nucleotide at the 5’ end

E. mRNA can only read a DNA molecule in the 5’ to 3’ direction

16) How many replication bubbles in this figure?



A. 1

B. 2

C. 3

D. 6

E. 8

17) The scientists who demonstrated the double helix of DNA is:

A. Franklin

B. Watson and crick

C. Hershey and chase

D. Chargaff

18) All of the following are functions of DNA polymerase except of:

A. DNA Synthesis

B. Primer synthesis

C. DNA Proofreading

D. DNA repair

E. Replacement of RNA with DNA

19) What determines the nucleotide sequence of the newly synthesized strand during DNA replication?

A. The particular DNA polymerase catalyzing the reaction

B. The relative amounts of the four nucleotide triphosphates in the cell

C. The nucleotide sequence of the template strand

D. The primase used in the reaction

E. The arrangement of histones in the sugar phosphate backbone

20) If adenine paired with guanine and cytosine paired with thymine the shape of DNA molecule would:

A. Be longer

B. Be shorter

C. Be circular

D. Have irregular widths along its length

E. Be unwinded

21) Multiple origins of replication on the DNA molecule of eukaryotic cell serve to:

A. Removes errors in DNA replication

B. Creates multiple copies of the DNA molecule at the same time

C. Assures the correct orientation of the two strands in the newly growing double helix

D. Shortens the time necessary for DNA replication

E. b and d are correct

22) Who demonstrated that DNA is genetic material in T2 phage?

A. Franklin

B. Watson and crick

C. Hershey and chase

D. Chargaff

23) An old DNA strand is used as ---------- for the assembly of new DNA strand:

A. Complement

B. Primer

C. Model

D. Template

E. Source of nucleotide

24) Which of the following is true about bacterial chromosome?

A. Single linear strand of DNA

B. Double circular strand of DNA

C. Single circular strand of DNA

D. Double linear strand of DNA

E. Double linear strand of RNA

25) Which of the following enzymes is not involved in nucleotide excision repair:

A. Nuclease

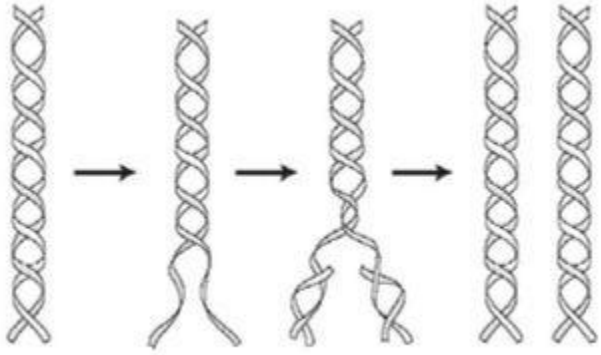
B. Ligase

C. Primase

D. DNA polymerase

E. Both A and C

26) The process shown is:



A. Transcription

B. Translation

C. DNA replication

D. Nucleosome formation

E. None of the above

27) The enzyme that involved in replacement of RNA primers with DNA is:

A. DNA poly III

B. DNA poly I

C. Ligase

D. Helicase

E. Primase

28) What is the role of DNA ligase in the elongation of the lagging strand during DNA replication?

A. It synthesizes RNA nucleotides to make a primer

B. It catalyzes the lengthening of telomeres

C. It joins okazaki fragments together

D. It unwinds the parental double helix

E. It stabilizes the unwound parental double helix

29) The type of replication that occurs in our cells is:

A. Conservative

B. Semi - conservative

C. Dispersive

D. None of the above

30) The best way for pairing the nitrogenous bases within the double helix is:

A. Purine + Purine

B. Purine + Pyrimidine

C. Pyrimidine + Pyrimidine

D. A and B is a correct pairing

E. None of the following is true

31) The short segments of newly synthesized DNA are joined into continuous strand by:

A. Helicase

B. DNA Polymerase

C. Ligase

D. Primase

E. Single strand binding proteins

32) The first step of replication is catalyzed by:

A. Helicase

B. DNA Polymerase

C. Ligase

D. Primage

E. Single strand binding proteins

33) If % of G = 22, then the % of A =?

A. 28 %

B.22 %

C. 44 %

D.66 %

E. None of the above

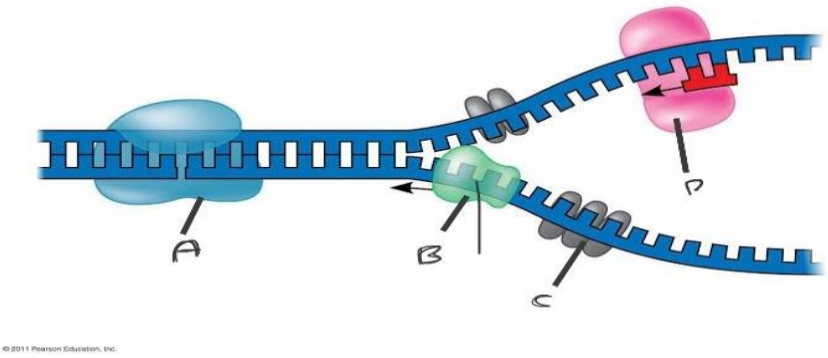
34) In this diagram, which letter represents the enzyme helicase?

A. A

B. B

C. C

D. D



35) To repair thymine dimer by nucleotide excision repair, you need:

A. Telomerase, Primase, DNA polymerase

B. Telomerase, Helicase, single strand binding proteins

C. Nuclease DNA polymerase, DNA Ligase

D. DNA ligase, Replication fork proteins, Nuclease

36) In complementary base pairing in double helix of DNA, Adenine pairs with by:

A. Thymine by three hydrogen bonds

B. Guanine by two hydrogen bonds

C. Thymine by two hydrogen bonds

D. Cytosine with two hydrogen bonds

37) Which of the following prevent repairing of DNA strand?

A. Helicase

B. DNA Polymerase I

C. Single strand binding proteins

D. Ligase

E. Primage

38) Which of the following is not property of DNA?

A. Anti-parallel

B. Double helix

C. Held by ionic bonds

D. Pair with histones

E. All of the above is correct

لذة الراحة لا تنال بالراحة، والجنة حفت بالمكاره، ولا يدرك السادة من لزم الوسادة

39) The correct order of DNA packaging is:

A. Histone - Nucleosome – 30 nm fiber - 300 nm fiber (Looped domain) - metaphase chromosome

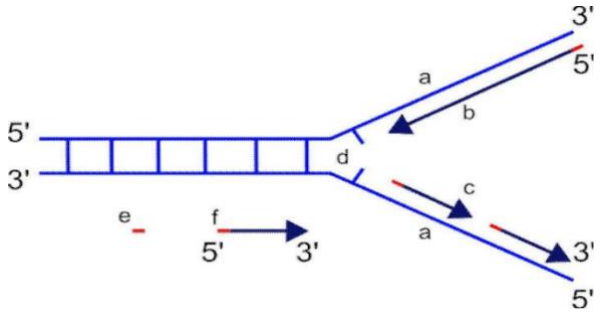
B. 30 nm fiber - 300 nm fiber (Looped domain) – Histone – Nucleosome – metaphase chromosome

C. 30 nm fiber - 300 nm fiber (Looped domain) - metaphase chromosome – Nucleosome - Histone

D. Histone - Nucleosome – 30 nm fiber - 300 nm fiber (Looped domain) - metaphase chromosome

E. Histone - 30 nm fiber - 300 nm fiber (Looped domain) – Nucleosome – metaphase chromosome

40) Label each of leading and lagging strands:



Answers:

1	E	**14**	C	**27**	B
2	A	**15**	A	**28**	C
3	A	**16**	C	**29**	B
4	E	**17**	B	**30**	B
5	C	**18**	B	**31**	C
6	A	**19**	C	**32**	A
7	A	**20**	D	**33**	A
8	C	**21**	E	**34**	B
9	A	**22**	C	**35**	C
10	B	**23**	D	**36**	C
11	B	**24**	B	**37**	C
12	A	**25**	C	**38**	C
13	B	**26**	C	**39**	A

لولا المشقة ساد الناس كلهم ** الجود يفقر والإقدام قتال

{وَالَّذِينَ جَاهَدُوا فِينَا لَنَهْدِيَنَّهُمْ سُبُلَنَا ۚ وَإِنَّ اللَّهَ لَمَعَ الْمُحْسِنِينَ}
[سورة العنكبوت: 69]

CH 17 :

1) During normal translation, where would you except to find tRNA attached to single amino acid?

A. E site

B. P site

C. A site

D. Both E and P

E. Both A and P

2) The enzyme that is responsible for transcription is:

A. DNA polymerase I

B. DNA polymerase III

C. DNA polymerase II

D. RNA polymerase I

E. RNA polymerase II

3) What is a ribozyme?

A. A mutated ribosome

B. An RNA with enzymatic activity

C. A DNA sequence near the promoter that assists in the binding of RNA polymerase

D. A biological catalyst consisting of DNA

E. An enzyme that holds open the DNA double helix while RNA polymerase adds nucleotides

4) Aminoacyl-tRNA synthetases:

A. Binds the correct amino acid to the empty tRNA

B. Binds the tRNA to the anticodon

C. Binds the amino acids together

D. Binds the tRNA to the mRNA

E. Cuts and assemble the tRNA molecule

5) Which of the following best describes the definition of a gene?

A. Region of DNA produces polypeptide or RNA

B. A section of DNA that produces a single protein product

C. The protein product that genetic material produces

D. A collection of polypeptides that fold to form a complex protein

E. Once genes are turned on in human cells, they cannot be turned off

6) Transcription in eukaryotes requires which of the following in addition to RNA polymerase?

A. The protein product of primer

B. Start and stop codons

C. Ribosomes

D. Transcription factors

E. Aminoacyl synthetase

7) Once transcribed, eukaryotic mRNA typically undergoes alterations that include:

A. Union the ribosomes

B. Fusion into circular forms known as plasmid

C. Linkage to histone molecules

D. Excision of introns

E. Fusion with other newly transcribed mRNA

8) What kind of molecules can be transcription factors?

A. DNA and RNA

B. RNA and proteins

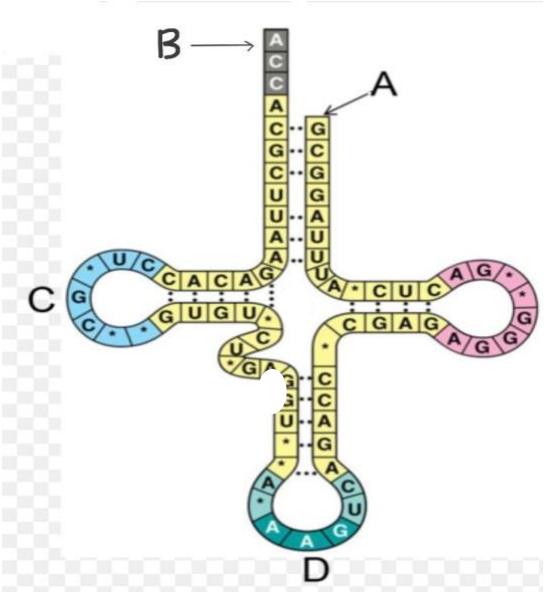
C. Proteins

D. Lipids

E. Lipids and carbohydrates

"سدِّدوا وقاربوا، واغدوا وروحوا، وشيء من الدلجة،
والقصدَ القصدَ تبلغوا"
-رسول الله عليه الصلاة والسلام

9) The figure represents tRNA that recognizes and binds the amino acid phenylalanine. Which codon on the mRNA strand codes for this amino acid?



A. UGG

B. GUG

C. UUC

D. CUU

E. CAU

10) Which letter represent the amino acid attachment site?

A. A

B. B

C. C

D. D

E. None of the above

11) Which of the following components does not form part of the transcription initiation complex in eukaryotic promoter?

A. TATA box

B. Start point

C. Transfer RNA

D. Transcription factors

E. RNA polymerase

12) The transcription factors can:

A. Regulate the synthesis of DNA in response to a signal

B. Regulate the release of calcium from the endoplasmic reticulum

C. Compose the spliceosome which facilitates mRNA splicing

D. Mediate the binding of RNA polymerase to the parental strand of DNA

E. Facilitate the termination of the mRNA transcript

13) What is the coding segment of a stretch of eukaryotic DNA called?

A. Introns

B. Exons

C. Codons

D. Replicons

E. None of the above

14) Which is the energy rich molecule required for the initiation of translation?

A. ATP

B. GTP

C. CTP

D. AMP

E. Glucose

15) The enzyme responsible for removal of introns is:

A. Spliceosome

B. Ligase

C. Nuclease

D. Ribozyme

E. None of the above

16) SRP molecules function involve:

A. Enhance the progress of translation by the ribosome

B. Dock the ribosome onto Golgi apparatus membrane

C. Arresting synthesis of a nascent membrane protein

D. Targeting proteins to ER

E. Acting as a chaperone

17) In the figure, letter A represents:

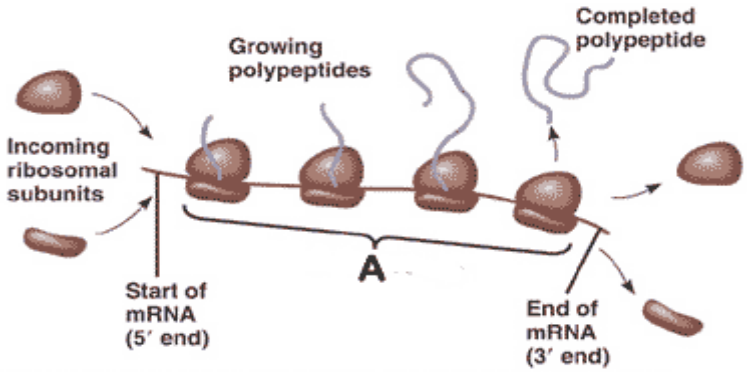
A. Nucleosome

B. Ribosome

C. Spliceosome

D. Polysome

E. None of the above



18) In prokaryotic translation occur:

A. Immediately as soon as transcription occur

B. In the nucleus

C. Only when cells are about to divide

D. In more than one cellular location

E. Translation does not occur in prokaryotic cells

19) What is polyribosome?

A. A group of ribosomes reading single mRNA at the same time

B. It produces multiple genes

C. It produces one product that is alternatively spliced

D. Molecule which removes introns

E. It polymerizes ribosome synthesis

20) Which of the following is a function of a signal peptide?

a) To bind RNA polymerase to DNA and initiate transcription

b) To signal the initiation of transcription

c) To translocate polypeptides across the ER membrane

d) To target the polypeptide to the ER

e) To terminate translation of the messenger RNA

21) The correct flow of genetic information for making proteins in eukaryotic cell is:

a) MRNA – Polypeptide – mRNA –DNA

b) MRNA – mRNA – Polypeptide –DNA

c) mRNA – MRNA – DNA –Polypeptide

d) DNA – mRNA – MRNA –Polypeptide

e) DNA – MRNA – mRNA –Polypeptide

22) The release factor:

a) Degrades the mRNA transcript

b) Keeps the polypeptide chain attached to the ribosome

c) Keeps the ribosome attached to the mRNA

d) Does not look like an aminoacyl tRNA

e) Binds to the stop codon in the A site in place of tRNA

23) Which of the following is not true about signal recognition particle (SRP)?

a) SRP binding to the ER signal sequence on a ribosome pauses translation

b) SRP is a protein-DNA complex

c) SRP receptor localizes on the ER membrane

d) An ER signal sequence and an SRP direct a ribosome to the SRP receptor on the ER membrane

e) SRP is not the protein translocator channel on the ER membrane

24) How many nucleotides are needed to code for a protein with 450 amino acids?

a) 450 × 1

b) 450 × 2

c) 450 × 3

d) 450 × 4

e) We cannot determine

25) Sickle-cell disease is the result of which kind of mutation?

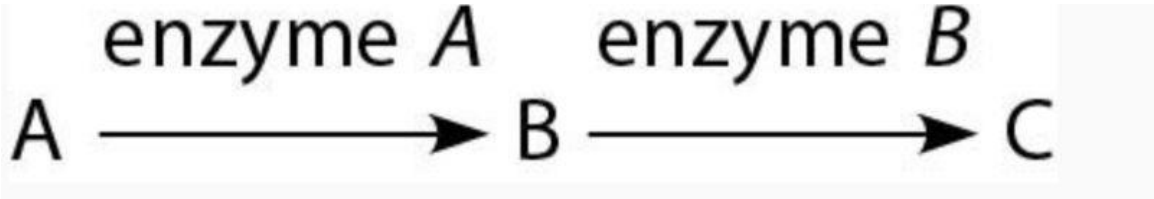
A. Point mutation

B. Silent mutation

C. Missense mutation

D. Nonsense mutation

26) A mutation results in a defective enzyme a. which of the following would result because of that mutation:



A. an accumulation of A and no production of B and C

B. an accumulation of A and B and no production of C

C. an accumulation of B and no production of A and C

D. an accumulation of B and C and no production of A

E. an accumulation of C and no production of A and B

27) During elongation which site in the ribosome represents the location where a codon being read?

A. E site

B. A site

C. P site

D. The small ribosomal subunit

E. mRNA binding site

لا يُستطاع العلم براحة الجسد

28) In eukaryote translation occur in:

A. Centriole

B. Centrosome

C. Lysosome

D. Cytoplasm

E. Nucleus

29) What is the effect of a nonsense mutation in a gene?

A. It changes an amino acid in the encoded protein

B. It has no effect on the amino acid sequence of the encoded protein

C. It introduces a stop codon into the mRNA, causes translation to be terminated prematurely

D. It alters the reading frame of the mRNA that prevents introns from being excised.

30) Frameshift mutations result from:

A. Addition or deletion of nucleotides

B. Introducing a stop codon into the mRNA, causes translation to be terminated prematurely

C. Changing an amino acid in the encoded protein

D. It has no effect on the amino acid sequence of the encoded protein

31) Which components not directly involved in translation:

A. MRNA

b. DNA

C. RNA

D. Ribosomes

E. GTP

32) Change a codon to a stop codon is called:

A. Missense mutation

B. Nonsense

C. Frame shift

D. Thymine dimer

33) The 5' end of pre-MRNA is modified by addition of:

A. A cap

B. An intron

C. An exon

D. Poly-A tail

E. Dose not modified

34) Which of the following protect mRNA from degradation?

A. Poly-A tail

B. 5’ cap

C. Introns

D. Exons

E. A and B only

35) which of the following synthesizes pre-mRNA in eukaryotic cells?

A. RNA polymerase I

B. RNA polymerase II

C. DNA polymerase I

D. DNA polymerase II

E. DNA polymerase III

36) Once transcribed, eukaryotic mRNA typically undergoes alteration that includes:

A. excision of introns.

B. fusion into circular forms known as plasmids.

C. linkage to histone molecules.

D. union with ribosomes.

E. fusion with other newly transcribed mRNA.

37) Of the following, which is the most current description of a gene?

A. a unit of heredity that causes formation of a phenotypic characteristic

B. a DNA subunit that codes for a single complete protein

C. a DNA sequence that is expressed to form a functional product: either RNA or polypeptide

D. a discrete unit of hereditary information that consists of a sequence of amino acids

38) Processing of pre-mRNA into mRNA occur in:

A. Cytoplasm

B. Cytosol

C. Nucleus

D. Nucleolus

E. None of the above

39) Which of the following is a stop codon?

A. UAA

B. UGA

C. UAG

D. All of the above

E. None of the above

40) The start codon can be translated to:

A. Thymine

B. Methionine

C. Guanine

D. None of the above

41) Which of the following is does not take place in nucleus?

A. Transcription

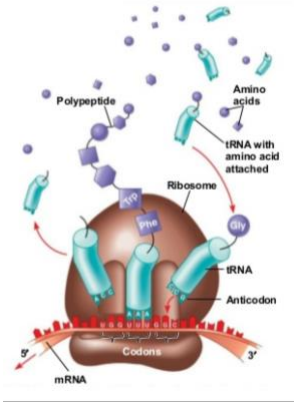
B. Assembly of ribosome

C. Removing of introns

D. Replication

E. Translation

42) Label A, P and E sites of the ribosome.



بحسب ركوب الأهوال، واحتمال المشاق والصعاب، تكون اللذة والفرح، فلا فرح لمن لا هم له، ولا لذة لمن لا صبر له، ولا راحة لمن لا تعب له، وكل ما فيه أهل النعيم المقيم إنما هو صبر ساعة

Answers:

1	E	**15**	A	**29**	C
2	E	**16**	D	**30**	A
3	B	**17**	D	**31**	B
4	A	**18**	A	**32**	B
5	A	**19**	A	**33**	A
6	D	**20**	D	**34**	E
7	D	**21**	D	**35**	B
8	C	**22**	E	**36**	A
9	C	**23**	B	**37**	C
10	B	**24**	C	**38**	C
11	C	**25**	A	**39**	D
12	D	**26**	A	**40**	B
13	B	**27**	B	**41**	E
14	B	**28**	D		

ولم أجِد الإنسانَ إلا ابن سعيِه ** فمن كان أسعَى كان بالمجدِ أجدرا