



PAST PAPERS



BIOLOGY

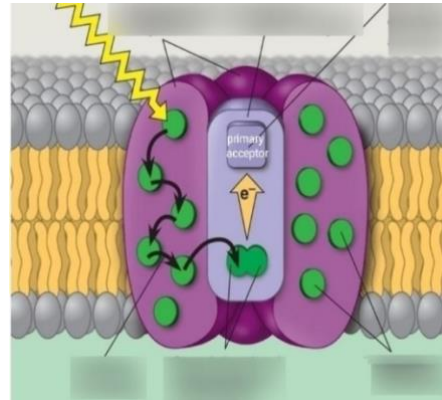
DONE BY: **Abdullah Na'eem**

PAST PAPERS

CH 11 :

1) The figure represents:

- A. ATP synthase
- B. Photosystem
- C. Channel protein
- D. Plastoquinone (Pq)
- E. None of the above



2) The CO₂ 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:

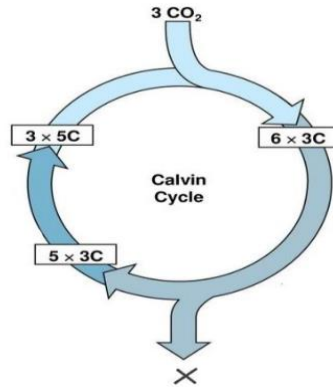
- A. No NADPH is produced
- B. No O₂ is produced
- C. Only ATP is produced
- D. Both NADPH and ATP are produced
- E. A, B and C are correct

- 4) If thylakoid membrane became leaky to H^+ , which of the following processes will be 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 CO_2 acceptor in the first step of Calvin cycle:
- A. 3-phosphoglycerate
 - B. Ribulose biphosphate
 - 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. CO_2 and glucose
 - B. H_2O and O_2
 - 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 صلى الله عليه وسلم:
(فوالله لأن يهدي الله بك رجلاً واحداً خيراً لك من أن يكون
لك حُمْر النعم)

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 CO₂ 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 الليلي
ومن رام العلا من غير كدِّ ** أضع العمر في طلب المحال
تروم العزُّ 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 CO₂ molecules, 6 NADPH, 9 ATP
- E. Fixation of 3 CO₂ molecules, 9 NADPH, 6 ATP

24) How is oxygen produced during photosynthesis?

- A. Split of CO₂
- B. Split of H₂O
- C. Split of H₂S
- 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 الهممة لا يضرّك التفرد ** فإن طرق العلاء قليلة الإيناس

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

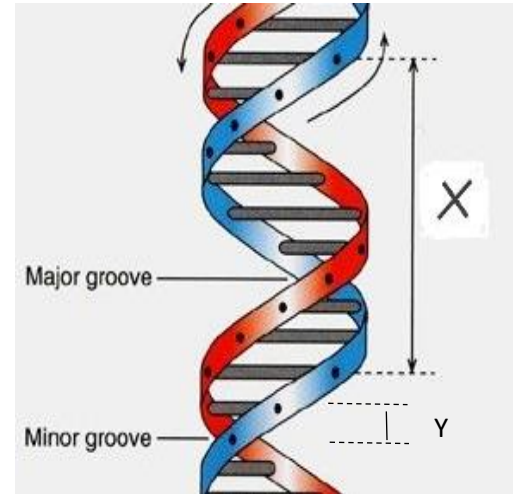
- 2) Synthesis of new DNA strand begins with:
 - A. An RNA primer
 - B. DNA primer
 - C. Okazaki fragment
 - D. Thymine dimer
 - E. DNA ligase

- 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

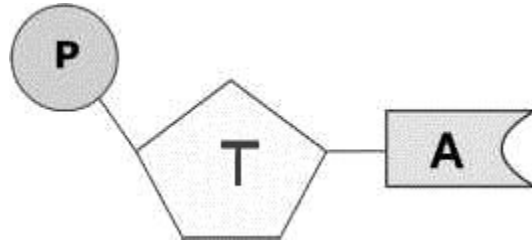
8) Which of the following can be said to be semiconservative process?

- A. Translation
- B. Transcription
- C. Replication
- D. Transduction
- E. Translation

قال رسول الله صلى الله عليه وسلم:
(سَلُوا اللَّهَ عِلْمًا نَافِعًا ، وَتَعَوَّذُوا بِاللَّهِ مِنْ عِلْمٍ لَا يَنْفَعُ).

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

- A. P
- B. T
- C. A

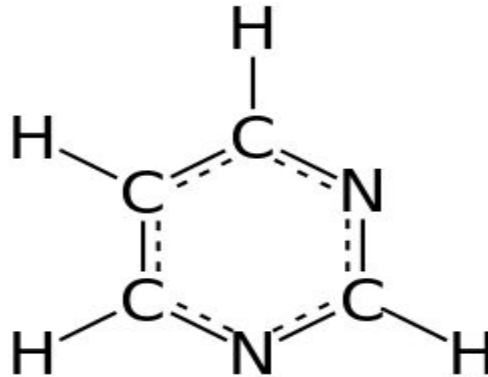


10) Which chemical group is at the 5' end of a single polynucleotide strand?

- 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

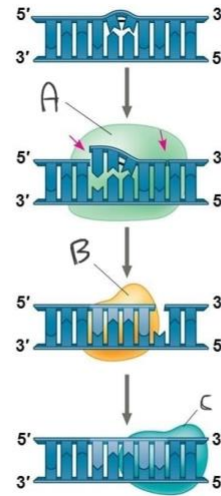


12) Cytosine makes up 38% of the nucleotide bases in a sample of DNA, what the percentage of the thymine in this sample will be?

- 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 ----

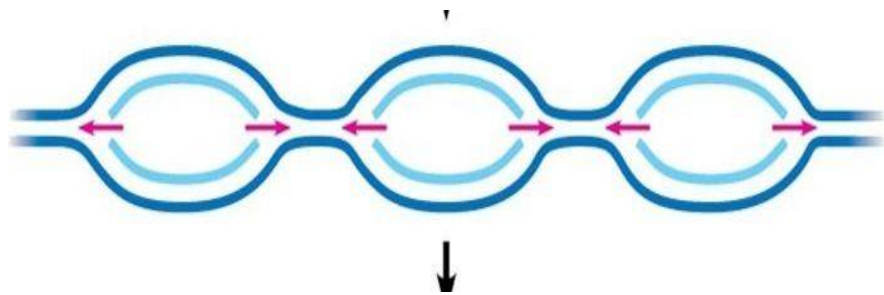
- A. At the replication fork
- B. At the lagging strand
- C. At the origin of replication
- D. At the start codon
- E. In the cytoplasm

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

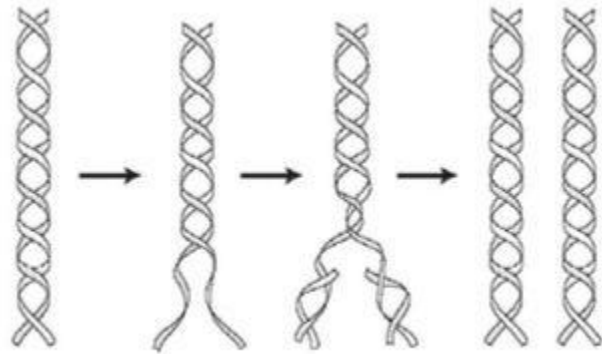
- 21) Multiple origins of replication on the DNA molecule of eukaryotic cell serve to:
- A. Removes errors in DNA replication
 - B. Creates multiple copies of the DNA molecule at the same time
 - C. Assures the correct orientation of the two strands in the newly growing double helix
 - D. Shortens the 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:

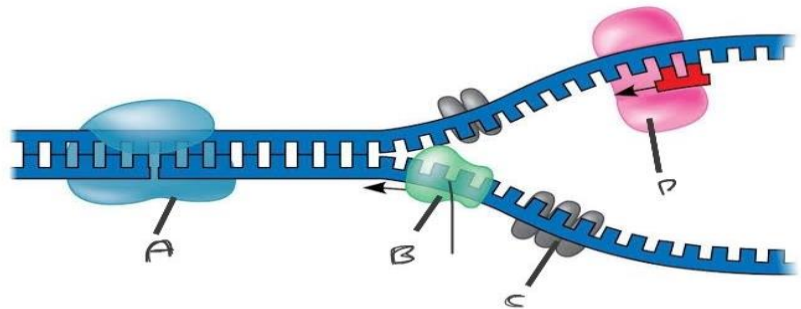
- A. Helicase
- B. DNA Polymerase
- C. Ligase
- D. Primase
- E. Single strand binding proteins

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



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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. Primase

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

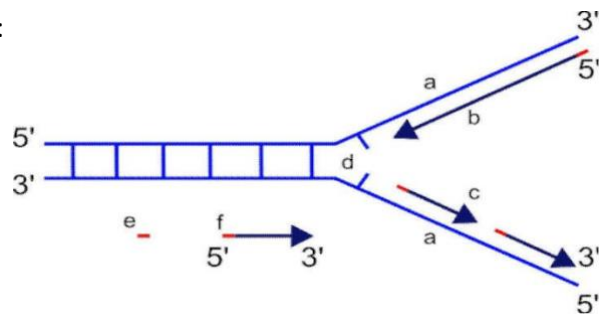
- A. Anti-parallel
- B. Double helix
- C. Held by ionic bonds
- D. Pair with histones
- E. All of the above is correct

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 يفتقر والإقدام قتال

CH 17 :

- 1) During normal translation, where would you expect 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

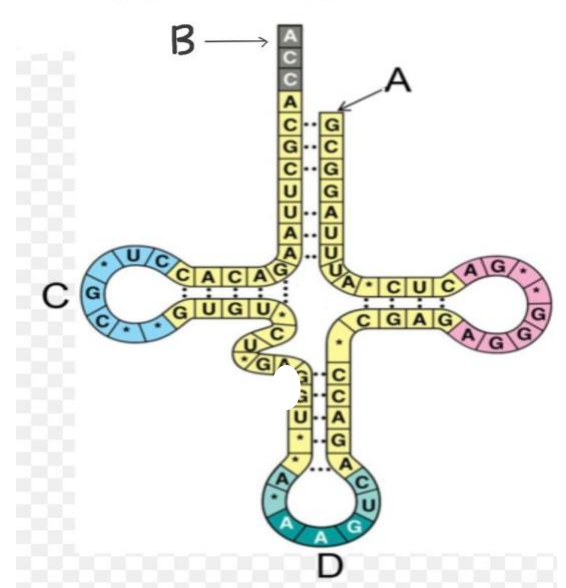
- 4) Aminoacyl-tRNA synthetases:
 - A. Binds the correct amino acid to the empty tRNA
 - B. Binds the tRNA to the anticodon
 - C. Binds the amino acids together
 - D. Binds the tRNA to the mRNA
 - E. Cuts and assemble the tRNA molecule

- 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

"سَدِّدُوا وَقَارِبُوا، وَاغْدُوا وَرُوحُوا، وَشَيْءٌ مِنَ الدَّلْجَةِ،
وَالْقَصْدَ الْقَصْدَ تَبَلَّغُوا"
-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:

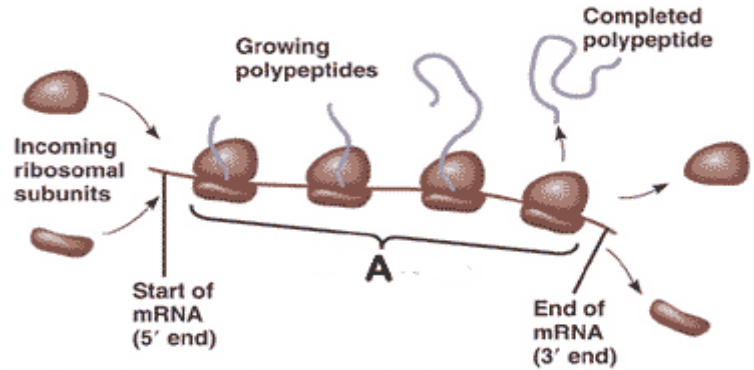
- A. Spliceosome
- B. Ligase
- C. Nuclease
- D. Ribozyme
- E. None of the above

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

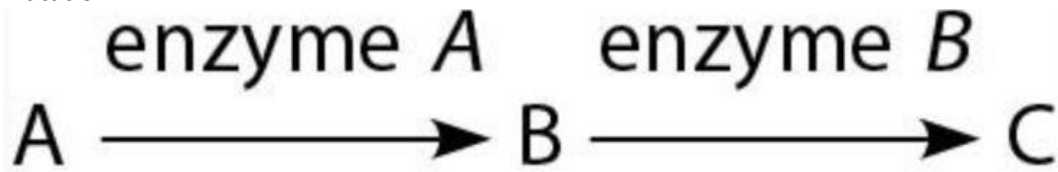
24) How many nucleotides are needed to code for a protein with 450 amino acids?

- 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

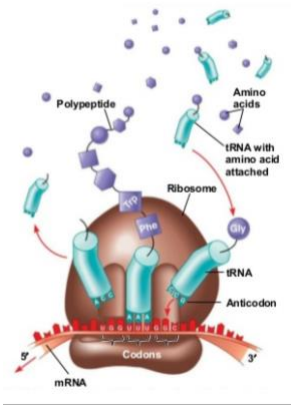
- 33) The 5' end of pre-mRNA is modified by addition of:
- A. A cap
 - B. An intron
 - C. An exon
 - D. Poly-A tail
 - E. Dose not modified
- 34) Which of the following protect mRNA from degradation?
- A. Poly-A tail
 - B. 5' cap
 - C. Introns
 - D. Exons
 - E. A and B only
- 35) which of the following 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 أجد الإنسان إلا ابن سعيه ** فمن كان أسعى كان بالمجد أجدرا