



Archive

Mid Biochemistry

Collected by



دَوَح

1. The incorrect statement about disulfide bond is:

- A. It can occur intramolecular or intermolecular.
- B. It's a covalent bond.
- C. It can occur only on intramolecular
- D. It occurs between two closely cysteine residues
- E. the oxidation of two cysteine produces cystine

ANSWER:

2. The molecule gives positive reaction in selivanoff's test and negative reaction in Barfoed and Benedict test is a:

- A. Glucose
- B. maltose
- C. Sucrose
- D. lactose
- E. fructose

ANSWER:

3. when you are in lab and use micropipette, you will change the tip if: ((if you working in a sterile conditions))?

- A. change your sample
- B. touches the flask
- C. touches your hand

D. All of above statement

ANSWER:

4. which of them form the covalent bond:

- A. P & H
- B. K & Na
- C. P & Cl
- D. H & Cl

ANSWER:

5. Which of the following is not of lactose intolerance:

- A. Bloating
- B. diarrhea
- C. headache
- D. abnormal cramps

ANSWER:

6. All of the following is alpha amino acid except:

- A. valine
- B. Isoleucine
- C. alanine
- D. Phenylalanine

ANSWER:

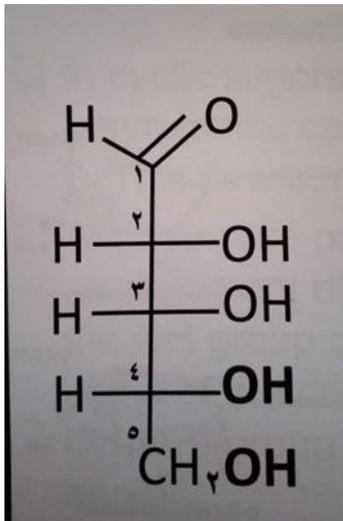
7. A protein which has a sufficient of glycine and Proline is a/an:

- A. Collagen
- B. Myoglobin
- C. keratin

D. Actin

ANSWER:

8. ((IN THE BELOW PICTURE of ribose)) How much of stereoisomers?

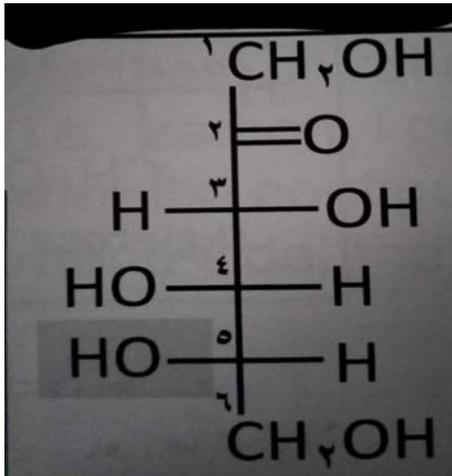


- A. 4
- B. 6
- C. 8
- D. 10
- E. 12

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ANSWER:

9. This sugar is (in picture)?



- L-fructose

10. The sequence of amino acid [alanine - valine - lysin - tryptophan - glycine - glutamate - proline - leucin] is?

- AVKEQGWPL

11. The folding process depends on all of them except:

- A. temperature
- B. Charge
- C. Ph degree
- D. Acid solvent
- E. Chaperones

ANSWER:

12. Who is responsible of 3D structure of protein:

- A. Peptide bond
- B. Amino acid sequence
- C. Inter hydrogen bond
- D. Chaperons

ANSWER:

13. All of these is function of the protein except:

- A. Transport molecules
- B. Work as receptors
- C. Catalyze specific reactions
- D. Protection from invaders
- E. Contains genetic material

ANSWER:

14. The functional group (COOH) is:

- A. Amine group
- B. Phosphate group
- C. Aldehyde group
- D. Hydroxyl group
- E. Carboxyl group

ANSWER:

15. Tow sugars have mirror images but cannot be superimposable:

- A. Epimers
- B. Enantiomers
- C. Conformers
- D. Anomers

ANSWER:

16. diastereomers 16- Dextrose is:

- A. commercially a name of galactose
- B. It is disaccharide
- C. It is hexoses sugar

E. dextrorotatory

ANSWER:

17. All of them can be rotated except:

- A. Proline
- B. Glycine
- C. Serine

ANSWER:

18. All of them is alpha amino acids except:

- A. Serine
- B. Phenylalanine
- C. Glycine
- D. Proline
- E. GABA

ANSWER:

19. If you have an acid with $\text{Ph} = 6.5$, acid concentration = 0.32, conjugate concentration = 0.32, the pka is:

- A. 6.5
- B. 4.3

ANSWER:

20. Which one of this can make polar covalent bond:

- A. P & H
- B. Mg & Ca
- C. P & C

D. K & Na

E. Cl & H

ANSWER:

21. The Henderson Hassel Balch:

A. show that pH equal to pK_a in all conditions

B. pH is more than pK_a

C. pH is less than pK_a

D. Relative between pH , pK_a , acid concentration, conjugate base concentration.

ANSWER:

22. The best buffer occurs when:

A. Conjugate base concentration = weak acid concentration

B. $pH = 7$

C. $pH = 7.4$

D. $pK_a > pH$

E. $pK_a = 1$

ANSWER:

23. Which of these proteins is the second in the chromatography (gel transmission):

A. Protein M = 65,000

B. Protein M = 145,00

C. Protein M = 24,000

D. Protein M = 350,00

E. Protein M = 33,000

ANSWER:

24. Molisch test reagent is:

- Naphthol

25. How you can distinguish between glucose, fructose, and sucrose:

- A. Barford's test
- B. Benedict's test
- C. Iodine test
- D. Seliwanoff test
- E. Molisch test

ANSWER:

26. One of these symptoms are not caused by glucose intolerance:

- Headache

27. Which of the following is true?

- H-bond is roughly parallel to the α -helix

28. Which of the following is not a derivative from tyrosine?

- Serotonin

29. All amino acids are alpha except:

- Alanine

30. Glycogen and starch?

- Starch can be linear, but glycogen is branched

31. The anomeric carbon is originated from:

- Carbonyl carbon

32. At which of the following, both functional groups of the amino acid are fully protonated:

- $\text{pH}=1$

33. L-iduronic acid exists in:

- Heparin and dermatan

34. Antiparallel β sheet is more stable than parallel sheets because the latter:

- Have less hydrogen bonds than antiparallel

35. Less stable?

- OH group is alpha and axial position

36. Genetics?

- Is the study of nucleic acids

37. Which of the following is standard amino acid?

- Phenyl alanine

38. Regarding phenylketonuria All true except:

- It's characterized with high levels of tyrosine

39. Very active area of research by biochemists:

A. lipidomic and glycomic

B. pharmacogenetics and genomics

ANSWER:

40. in colectomy we use ...?

- Carcinoembryonic

41. when you in lab and the acid splatters into your hand what you should do:

A. water

B. weak base

C. natural soap

ANSWER:

42. you will carry 155 μ l, what pipette will you use?

- 20-200 μ l pipettes

43. for 6N of H_2SO_4 the molarity of this solution is equal to:

-3

44. picture and the OH is left-handed side:

- L- sugar

45. the concentration of acid ... is .35 and the conjugate base is .35 and the PH is 4.6 calculate the pka:

- 4.6

46. one of the following is not true about phenylketonuria:

- cause mental disorder because accumulated of tyrosine

47. When you heat up a solution in the lab, in which direction will you place the opening of the test tube?

- In a direction where there is no one

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1. The precursor amino acid of adrenaline is:

- A. Histidine
- B. Tyrosine
- C. Glutamate
- D. Tryptophan
- E. Alanine

ANSWER: B

2. The bonding of unit molecules to produce a polysaccharide is called:

- A. condensation
- B. translation
- C. cellular respiration
- D. hydrolysis
- E. degradation

ANSWER: A

3. A solution with pH = 5 is, with pH = 7?

- A. 2 times more basic
- B. 10 times more basic
- C. 10 times more acidic
- D. 100 times more acidic

E.1000 times more basic

ANSWER: D

4. The amino acid which contains a free sulfhydryl group (-SH) in its side chain "R group" is:

- A. Cysteine
- B. Leucine
- C. Methionine
- D. Tyrosine
- E. Cystine

ANSWER:A

5.For solutions and buffers, choose the WRONG statement?

- A. a buffer is a solution with a constant pH
- B. solutions made up of solvents and solutes
- C. solutions are non-homogenous mixtures
- D. all buffers are solutions
- E. in solutions, the solvents can be gases

ANSWER:

6. Which one of the following solutions has stronger acidity?

- A. H = 107
- B. pH = 9
- C. pH=6
- D. pH = 10^a
- E. pH = 8

ANSWER:

7. In a helix, choose the CORRECT statement?

- A. side chain residues point up and down the axis of the helix
- B. the helix is right-handed
- C. there are five residues per helical turn
- D. the oxygen of the carbonyl carbon in a peptide bond points out toward the exterior of the helix
- E. there are usually many prolines' residues present

ANSWER: B

8. In an Alpha-turn, the end residues are separated by peptide bonds?

- A. two
- B. one
- C. five
- D. three
- E. four

ANSWER: E

9. Which of the following has high helix-forming propensities?

- A. glycine
- B. proline
- C. alanine
- D. tryptophan
- E. tyrosine

ANSWER: C

10. The functional group - NH₂ is a/an

- A. amino group

- B. phosphate group
- C. hydroxyl group d. carbonyl group
- E. carboxyl group

ANSWER:

11. There is an overlapping between biochemistry and one of the following subjects of science?

- A. Pharmacology
- B. Toxicology
- C. Physiology
- D. Biology
- E. Pathology

ANSWER: A

12. Which one of the following compounds is optically active?

- A. L-glycine
- B. D-methionine
- C. B-alanine
- D. GABA
- E. cystine

ANSWER: E

13. In an Alpha-turn, the end residues are separated by peptide bonds?

- A. two
- B. one
- C. five
- D. three

E. four

ANSWER: E

14. The bonding of unit molecules to produce a polypeptide is called?

- A. hydrolysis
- B. translation
- C. cellular respiration
- D. Dehydration synthesis
- E. degradation

ANSWER: D

15. The amino acids: lysine, alanine, glutamic acid and selenocysteine share one common feature from the following?

- A. Standard amino acids
- B. Non-standard amino acids
- C. Proteinogenic amino acids
- D. Non-proteinogenic amino acids with protein role
- E. Non-proteinogenic amino acids with non-protein role

ANSWER: C

16. The one-letter code of amino acids sequence: V-N-L-K-Y-W-W-D-A-0 matches one of the following three-letter code of amino acids sequence?

- A. Val-Asn-Leu-Lys-Tyr-Trp-Trp-Asp-Ala-Gln
- B. Val-Asp-Lys-Leu-Tyr-Trp-Trp-Asn Ala-Glu
- C. Pro-Asp-Lys-Leu-Tyr-Trp-Trp-Asn-Ala-Glu
- D. Val-Asn-Leu-Lys-Tyr-Trp-Trp-Asp-Ala-Glu
- E. Val-Asn-Leu-Lys-Tyr-Trp-Trp-Asn-Ala-Gin

ANSWER:A

17. The molecular formula for glycine is $C_2H_5O_2N$. What would be the molecular formula for a linear oligomer made by linking ten glycine molecules together by condensation synthesis?

- A. $C_{20}H_{50}O_{20}N_{10}$
- B. $C_{20}H_{32}O_{11}N_{10}$
- C. $C_{20}H_{40}O_{10}N_{10}$
- D. $C_{20}H_{68}O_{29}N_{10}$
- E. $C_{22}H_{68}O_{29}N_{10}$

ANSWER:

18. One of the followings is a calcium sensor subunit:

- A. TnI
- B. TnC
- C. myosin head
- D. TnT
- E. tropomyosin

ANSWER: B

19. The sugar found in RNA is:

- A. Deoxyribose
- B. Ribose
- C. Ribulose
- D. Erythrose
- E. Sucrose

ANSWER: B

20. There are several levels of protein structure, the most complex of which is?

- A. primary

- B. secondary
- C. tertiary
- D. quaternary
- E. alpha helix

ANSWER: D

21. In the formation of a macromolecule, what type of bond would join two monosaccharide's subunits?

- A. peptide bond
- B. glycosidic bond
- C. phosphodiester bond
- D. ionic bond
- E. hydrogen bond

ANSWER: B

22. One group of these sciences can lead to the understanding of the basis of biochemistry?

- A. Anatomy, physiology, physics and immunology
- B. Chemistry, pharmacology, biology and pathology
- C. Biology, chemistry, physiology and anatomy
- D. Biology, immunology, anatomy and microbiology
- E. Chemistry, pathology, anatomy and pharmacology

ANSWER:

23. The amino acid which contains a thioether group in its side chain "R group" is:

- A. cysteine
- B. leucine
- C. methionine

D. tyrosine

E. cysteine

ANSWER: A

24. If you are working in the biochemistry laboratory and a chemical gets into your mouth, you should ?

A. Spit it out

B. Rinse your mouth

C. Visit a doctor

D. All the statements are true

E. Tell your demonstrator

ANSWER: D

25. If you have a 9M solution of $Al(OH)_3$, then the normality of this solution is equal to?

A. 3

B. 27

C. 4.5

D. 0.33

E. 1.33

ANSWER: E

26. Enantiomers are all of the followings EXCEPT?

A. pair of stereoisomers

B. optically active

C. chiral molecules

D. mirror images

E. superimposable

ANSWER: B

27. A process by which a protein structure assumes its functional shape or conformation is?

- A. denaturing
- B. folding
- C. synthesis
- D. hydrolysis
- E. aggregation

ANSWER:

28. Which of the following pairs of amino acids might contribute to protein conformation by forming electrostatic interactions?

- A. Glycine and leucine
- B. Glutamate and lysine
- C. Phenylalanine and tyrosine
- D. Lysine and arginine
- E. Tyrosine and aspartic

ANSWER: B

29. The pH value at which the molecule is neutral is called:

- A. zwitterion
- B. isoelectric point
- C. ampholyte
- D. anionic
- E. cationic

ANSWER: B

30. For 3N solution of H_2SO_4 , the Molarity of this?

- A. 6
- B. 1.5
- C. 0.67
- D. 0.75
- E. 3

ANSWER:

31. The stronger the acid (choose the correct answer)?

- A. The higher the pKa
- B. The higher the pH
- C. The lower the Ka and pKa
- D. The higher the OH concentration
- E. The higher the Ka

ANSWER: E

32. Given that $pK_1 = 2.3$, $pK_2 = 9.7$ then the dominant form of leucine at $pH = 6$ is?

- A. Neutral
- B. Positively charged
- C. Negatively charged
- D. Cationic
- E. Anionic

ANSWER: A

33. Which one of the followings is the initiation codon?

- A. AUG
- B. GUA
- C. UAG

D. UGA

E. UUA

ANSWER: A

34. The sugar found in DNA is?

A. Deoxyribose

B. Ribose

C. Ribulose

D. Erythrose

E. Sucrose

ANSWER: A

35. Which of the following pairs of amino acids might contribute to protein conformation by forming disulfide bond?

A. Cysteine and cysteine

B. Glutamate and lysine

C. Phenylalanine and tyrosine

D. Lysine and arginine

E. Glycine and leucine

ANSWER: A

36. The.... is an essential amino acid and required for the synthesis of tyrosine?

A. Arginine

B. Lysine

C. Tryptophan

D. Phenylalanine

E. Tyrosine

ANSWER: A

37. For 5N solution of H_2SO_4 , the Molarity of this solution is equal to?

- A. 6
- B. 1.5
- C. 0.67
- D. 0.75
- E. 2.5

ANSWER:

38. The neutral form of amino acid is called ?

- A. Zwitterion
- B. Isoelectric point
- C. Ampholyte
- D. Anionic
- E. Cationic

ANSWER: A

39. There are several levels of protein structure, the simplest of which is?

- A. Primary
- B. Secondary
- C. Tertiary
- D. Quaternary
- E. Beta sheet

ANSWER: A

40. The process of returning a denatured protein structure to its original structure and normal level of biological activity is ?

- A. Denaturing
- B. Synthesis
- C. Renaturation
- D. Hydrolysis
- E. Aggregation

ANSWER: C

41. The one-letter code of amino acids sequence: [M-N-L-H-Y-D-K-Q-A-R] matches one of the following three-letter code of amino acids sequence?

- A. Met-Asp-Leu-His-Tyr-Asp-Lys-Gln-Ala-Arg
- B. Met-Asn-Leu-His-Tyr-Asn-Lys-Gln-Ala-Arg
- C. Met-Asn-Lys-His-Tyr-Asp-Leu-Gln-Ala-Arg
- D. Met-Asn-Leu-His-Tyr-Asp-Lys-Gln-Ala-Arg
- E. Met-Asn-Leu-His-Trp-Asp-Lys-Gln-Ala-Arg

ANSWER: D

42. Suppose that the acid (CH_3COOH) has a $\text{pK}_a = 7.76$ was placed in a solution that has a $\text{pH} = 4.25$, the dominant form of this acid in the solution will be?

- A. CH_3COOH
- B. CH_3COOH_2
- C. CH_3CH^+
- D. CH_3COO^-
- E. CH_3CO^-

ANSWER:

43. What should you maintain in your lab work area?

- A. A messy workspace
- B. A clean and tidy workspace

- C. Chemicals spread all around you
- D. Lots of food and drink
- E. Use cell and headphones

ANSWER: B

44. Regarding pH, pKa and Ka, choose the correct answer?

- A. The higher the pH the stronger the acid
- B. The higher the pKa the stronger the acid
- C. For acids, at pH higher than pKa more base than acid
- D. At pH lower than pKa more dissociation to acids
- E. No relation between strength of acid and Ka

ANSWER:

45. The molecular formula for glycine is $C_2H_5O_2N$.

What would be the molecular formula for a linear oligomer made by linking five glycine molecules together by condensation synthesis?

- A. $C_{10}H_{25}O_{10}N_5$
- B. $C_{10}H_{17}O_8N_5$
- C. $C_{10}H_{18}O_{10}N_5$
- D. $C_{10}H_{29}O_{19}N_5$
- E. $C_{10}H_{17}O_6N_5$

ANSWER:

46. The amino acids: pyrrolysine, n-formyl methionine and selenocysteine share one common feature from the followings?

- A. Standard amino acids and proteinogenic
- B. Non-standard amino acids and non- proteinogenic
- C. Non-proteinogenic amino acids with protein role

D. Non-proteinogenic amino acids with non- protein role.

E. Proteinogenic amino acids added to polypeptide chain by unique mechanism

ANSWER: E

47.If you have 8M solution of Ca (OH)₂, the Normality of this solution is equal to...?

A. 4

B. 16

C.0.25

D. 1.25

e.62

ANSWER:

48.For the peptide bond, choose the INCORRECT answer?

A. It is a Trans bond

B. It is a Cis bond

C. It is rigid and planar

D. It is a covalent bond

E. It has a partial double bond character

ANSWER: B

49. For Myoglobin, choose the WRONG statement?

A. Myoglobin Can't carry CO₂

B. Myoglobin O₂ affinity is higher than hemoglobin O₂ affinity

C. Myoglobin has cooperativity of O₂ binding

D. Myoglobin has No quaternary structure

E. Myoglobin is found in muscles

ANSWER:B

50. In an alpha helix, choose the CORRECT statement?

- A. There are usually many Glycine residues present
- B. Side chain residues point up and down the axis of the helix
- C. The helix is always left-handed
- D. There are 3.6 residues per helical turn
- E. The oxygen of the carbonyl carbon in a peptide bond points out toward the exterior of the helix

ANSWER: D

51. One of the followings is a tropomyosin binding subunit?

- A. Elastin
- B. TnC
- C. Myosin head
- D. TnT
- E. Collagen

ANSWER: D

52. Which one of the followings prefers to adopt B-strand conformations?

- A. Leucine
- B. Proline
- C. Alanine
- D. Methionine
- E. Tyrosine

ANSWER: A

53. In a delta-turn, the end residues are separated by peptide bonds?

- A. Two

- B. One
- C. Five
- D. Three
- E. Four

ANSWER: B

54. 75% of Myoglobin structure is a-helix in regions?

- A. Seven
- B. Five
- C. Six
- D. Nine
- E. Eight

ANSWER: E

55. Given that $pK_1 = 2.3$, $pK_2 = 9.7$ then the dominant form of leucine at $pH = 1$ is?

- A. Zwitterion
- B. Neutral
- C. Negatively charged
- D. Cationic
- E. Anionic

ANSWER: D

56. The functional group - OH is a /an?

- A. amino group
- B. phosphate group
- C. hydroxyl group
- D. carbonyl group

E. carboxyl group

ANSWER: C

57. In the formation of a macromolecule, what type of bond would join two amino acids subunits.

- A. Peptide bond
- B. Glycosidic bond
- C. Phosphodiester bond
- D. ionic bond
- E. Hydrogen bond

ANSWER: A

58. For solutions and buffers, choose the WRONG statement?

- A. A buffer is a solution with a constant pH
- B. Solutions made up of solvents and solutes
- C. Solutions are homogenous mixtures
- D. All solutions are buffers
- E. In solutions, the solvents can be gases

ANSWER:

59. Enantiomers are one of the followings?

- A. Pair of constitutional isomers
- B. Optically active
- C. Achiral molecules
- D. Not always mirror images
- E. Superimposable

ANSWER: B

60. The precursor amino acid of adrenaline is ?

- A. Histidine
- B. Tyrosine
- C. Glutamate
- D. Tryptophan
- E. Alanine

ANSWER: B

61. The bonding of unit molecules to produce a polysaccharide is called _?

- A. condensation
- B. translation
- C. cellular respiration
- D. hydrolysis
- E. degradation

ANSWER: A

62. Choose the correct statement Select one:

- A. myosin is a tetramer protein
- B. tropomyosin protein binds head to tail with actin thin filament
- C. troponin complex contains five subunits
- D. myoglobin protein has the quaternary structure level
- E. the heavy chain of myosin contains four domains

ANSWER: B

63. The glucose is the main energy substrate in? Select one:

- A. Brain cells
- B. Skeletal muscles

- C. Liver cells
- D. Heart cells
- E. Kidney cells

ANSWER: A

64. If the OH group at ONLY one chiral carbon in the linear structure of monosaccharides is located on the right or the left, then the resulting stereoisomer is assigned as? Select one:

- A. L-sugar
- B. D-sugar
- C. Epimer
- D. a-sugar
- E. B-sugar

ANSWER:C

65. $C_6H_{12}O_6$ is the molecular formula of all of the following sugars EXCEPT? Select one:

- A. Glucose
- B. Fructose
- C. Galactose
- D. Mannose
- E. Ribose

ANSWER: E

66. After the cyclic sugar formation, the carbonyl carbon will be converted to? Select one:

- A. anomeric carbon
- B. achiral carbon

- C. alcoholic carbon
- D. carboxylic acid
- E. ketonic group

ANSWER: A

67. One of the following is not correct regarding cellobiose? Select one

- A. It is a reducing sugar
- B. This disaccharide results from degradation of cellulose
- C. It consists of two B-glucose units
- D. The monomers in cellobiose are found in the - configuration and as cyclic pyranose rings
- E. The glucose units are joined together by a-1,4 glycosidic bond

ANSWER: E

68. Many factors affect calcium absorption, which of the following carbohydrate is effective in promoting the calcium absorption? Select one:

- A. Sucrose
- B. Maltose
- C. Lactose
- D. Xylose
- E. Galactose

ANSWER: C

69. One of the following compounds is not considered as modified sugar?

Select one:

- A. glucuronic acid
- B. glycerol
- C. deoxyribose

D. glyceraldehyde

E. glucosamine

ANSWER: D

70. This polysaccharide is hetero, natural, linear and mainly found in mast cells?

Select one:

A. Glycogen

B. Hyaluronic acid

C. Dermatan sulphate

D. Heparin

E. Chitin

ANSWER: D

71. Regarding Lactose Intolerance, one of the following is correct?

Select one:

A. It is caused by deficiency of the sugar lactose in milk

B. It has symptoms like constipation and fever

C. due to deficiency of lactase enzyme, the lactose found in milk will be absorbed from the wall of small intestine intact

D. GIT disturbances are resulted from undegraded lactose reaching the colon intact

E. Small babies are given the milk formula AR

ANSWER: D

72. Enantiomers are all of the followings EXCEPT?

A. pair of stereoisomers

B. optically active

C. chiral molecules

- D. mirror images
- E. superimposable

ANSWER: E

73. The bonding of unit molecules to produce a polysaccharide is called a

- A. condensation
- B. translation
- C. cellular respiration
- D. hydrolysis
- E. degradation

ANSWER: A

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