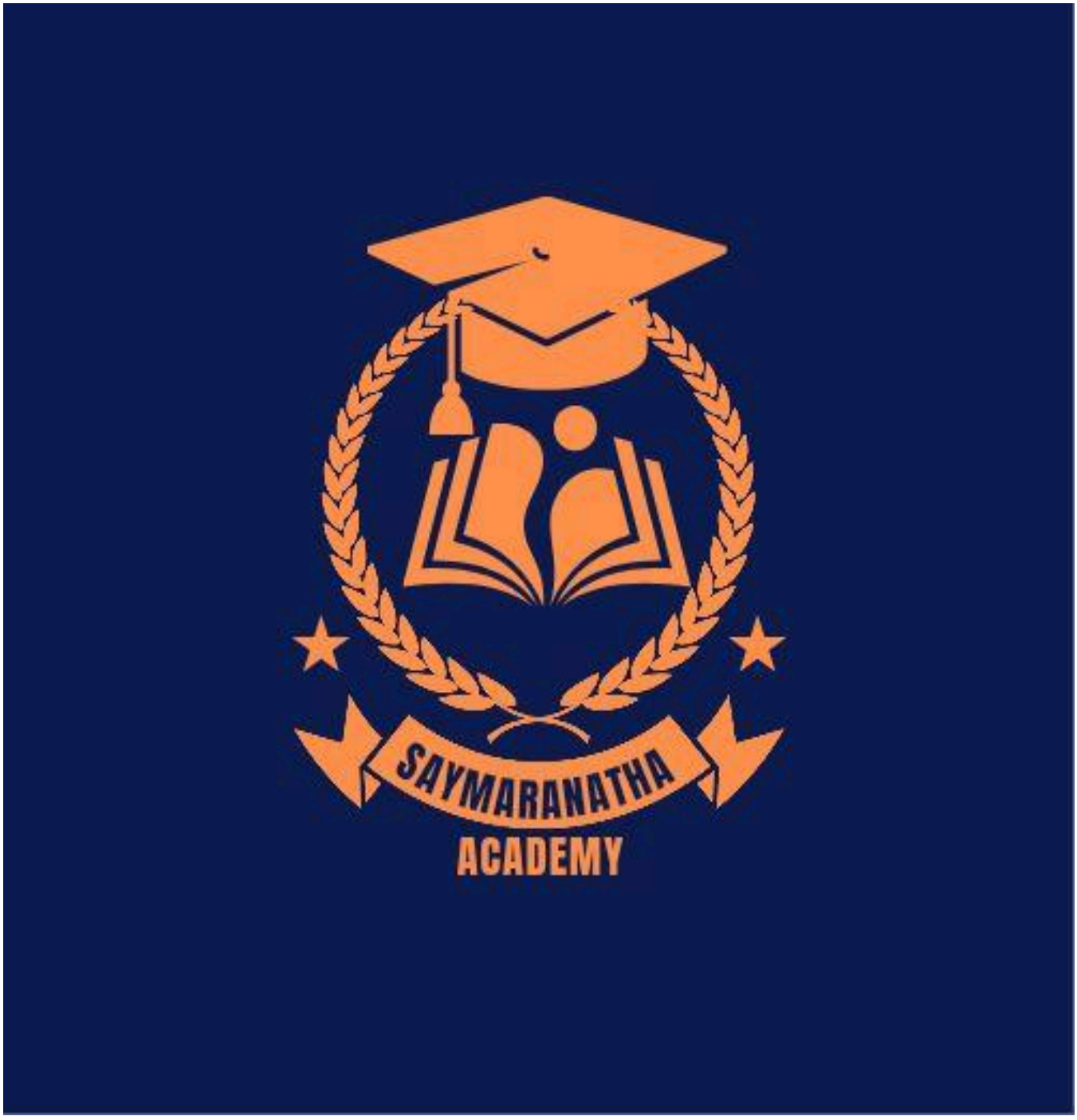
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#EUEE Questions

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1. To which group of compounds do enzymes belong?
A. Lipoproteins
C. Globular proteins
B. Fibrous proteins
D. Deoxyribonucleic acid
2. If an enzyme has its optimum activity at neutral PH, to which of the following PH values does this correspond?
A. PH 14
B.PH 7
C. PH 12
D. PH 4
3. What is true about the rate of an enzyme catalyzed reaction if the enzyme concentration is kept constant and the substrate is supplied in excess? The rate would:
A. Rise continuously
C. Decline sharply
B. Stay constant
D. None of the above
4. Among the following, identify the molecule that is an enzyme:
A. Starch
B. Cellulase
C. Cellulose
D. Glycogen
5. An enzyme known as catalase converts hydrogen peroxide into water and oxygen. In this reaction: which one is the substrate?
A. Catalase
B. Hydrogen peroxide
C. water and oxygen
D. water only
6. Identify the enzyme that is used to cut DNA molecules into small pieces?
A. Urease
B. Reverse transcriptase
C. DNA polymerase
D. Restriction endonuclease
7. Identify the statement that more correctly explains why each cell contains so many different types of enzymes? Enzymes are
A. Consumed in the process of catalysis
C. Used over and over again
B. Specific to their substrates.
D. Easily synthesized
8. To which category of enzymes do the digestive enzymes that breakdown food substances in the human alimentary canal belong
A. Intracellular enzymes
B. Extracellular Activation
C. Globular enzymes
D. Fibrous enzymes
9. If an enzyme is provided with its normal substrate plus another molecule having the same shape and size as the substrate, which one of the following would happen?

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A. Allosteric inhibition
C. Irreversible inhibition
B. Competitive inhibition
D. End product inhibition
10.If one keeps on adding a substrate to a fixed amount of an enzyme, when does the reaction rate reach a plateau?
A. When all the substrate is converted to products
B. When all the active sites of the enzymes are occupied
C. When most of the enzyme molecules are consumed
D. When much of the products are accumulated
11.Which of the following is true about those bacteria which dwell in hot springs
A. They are not metabolically active
C. They get energy of activation from the spring heat
B. They use non-protein enzymes
D. Their enzymes do not denature at that temperature
12.Which factor has a more negative effect on the functions of enzymes than the others?
A. Neutral PH
C. Very high temperature.
B. Optimal amount of salt concentration.
D. Optimal amount of substrate concentration
13.What do we call the substance upon which an enzyme acts?
A. Product
C. Substrate
B. Activation energy
D. Enzyme-substrate complex
14.When an enzyme is denatured by heat or extreme PH, which one of the following does it lose?
A. The peptide bond.
C. Secondary structure.
B. Primary structure.
D. Tertiary structure.
15.In Which one of the following points does the induced-fit model of enzyme action differ from the lock-and-key model?
A. Enzyme lower the energy of activation
B. Substrates bind at the active site of the enzyme
C. During the reaction, an enzyme-substrate complex is formed.
D. The shapes of the substrate and active site are complementary.
16.Which of the following mechanisms do cells use to regulate enzymes catalyzed reactions in metabolic pathways?
A. Enzyme denaturation
C. Irreversible inhibition
B. End product inhibition
D. Competitive inhibition
17. Suppose 25% of the molecules of an enzyme are inhibited by a non-competitive inhibitor, which one of the following would happen if the amount of the substrate is increased by 50%?
A. The reaction rate would double.
B. More enzyme molecules would get inhibited.
C. The rate of the reaction would decrease by 50%.

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D. The rate of the reaction would remain unchanged.
18.In competitive inhibition, which one of the following factors determines the rate of the inhibition?
A. The reaction temperature.
C. The enzyme concentration
B. The substrate concentration
D. The ratio of inhibitor to enzyme concentration
19.What are the environmental advantages of using enzymes in industry?
A. It makes high production possible with less input of heat.
B. It makes high production possible with high input of heat.
C. It makes high production possible with emission of more CO2.
D. It helps high production with supply of more heat and emission of more CO2
20.Which of the following classes of enzymes digests carbohydrates?
A. Amylases
B. Lipases
C. Proteases
D. Nucleases
21.One of the following molecules is the building units of an enzyme molecule.
A. Amino acids
B. Glucose
C. Nucleotides
D. Fatty acids
22.Which of the following pairs of molecules are known to have catalytic activity?
A. Lipids and proteins
C. Proteins and RNAs
B. Carbohydrates and proteins
D. Proteins and DNAs
23.To which class of enzymes do the digestive enzymes belong?
A. Esterases
B. Transferases
C. Hydrolases
D. Isomerases
24.Which of the following types of enzyme inhibitions can be removed when the end product of the metabolic pathway is depleted?
A. Allosteric inhibition
C. Non-reversible inhibition
B. Competitive inhibition
D. Reversible competitive inhibition
25.In the case of enzymatic chemical reactions, what do you call the substance that is acted upon by an enzyme?
A. Polypeptide
B. Coenzyme
C. Vitamin
D. Substrate
26.Which of the following is the common characteristic of all enzymes?
A. They act inside cells only
C. They are proteins

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B. They require cofactors
D. They operate at any PH
27.Which of the following pH values represents the strongest base?
A. 2
B. 7
C. 13
D. 15
28.Into which of the following organic compounds can lipase, maltase and sucrase be grouped?
A. Hormones
B. Carbohydrates
C. Nucleic acids
D. Enzymes
29.For a biological detergent to effectively remove oily and greasy dirt, which of the following enzymes should it contain?
A. Cellulose
B. Protease
C. Amylase
D. Lipase
30.Which region of the human digestive tract contains enzymes that perform well at low pH?
A. Mouth
B. Stomach
C. Small intestine
D. Large intestinal
31. To which one of the following organic molecules do enzymes belong ?
A. Carbohydrates
B. Amino acids
C. Proteins
D. Lipids
32. Which of the following is a coenzyme?
A. NAD
B. Carbohydrates
C. Water molecule
D. Protein
33. Which of the following substances has a shape which is similar to that of the substrate of an enzyme?
A. The reaction product
C. A competitive inhibitor
B.A cofactor
D. An allosteric inhibitor
34. At which level of structural organization do proteins have the alpha-helix shape?
A. Primary structure
C. Tertiary structure
B. Secondary structure
D. Quaternary structure
35. Which one of teh following terms refers to how fast an enzyme acts on its substrate?
A. Turn over number B. Substrate number C. Enzyme number D. Product number
36. What does a restriction enzyme do?

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A. Restricts transcription
C. Prevent DNA from replicating
B. Cuts DNA at specific sites
D. Hydrolyzes the DNA molecule
37. The optimum temperature of enzymes found in thermophilic bacteria is:
A. Lower than for enzymes in the human body
C. higher than enzymes in the human body
B, the same as enzymes found in human body
D. lower than enzymes found in warm blooded animals
38. If the rate of enzyme catalyzed reaction remains constant even when more substrate is added to the reaction ,which of the following might be the reason?
A. Saturation of the enzyme
C. Inhibition of enzyme- substrate complex formation
B. Inactivation of the enzyme
D. Loss of substrate specificity by the enzyme
. 39. Which of the following will primarily happens if the enzymes in the lysosomes of a cell are defective?
A. Cellular debris will not be removed
C. Chromosome replication will cease
B. ATP production will stop
D. Diffusion process will stop
40. Which of the following properties of enzymes makes it possible that a single enzyme molecule can act on many substrate molecules?
A. Enzymes are proteins
C. Enzymes lower the energy of activation
B. Enzymes are reused over and over again
D. Enzymes are substrate specific
41. Which process produces mRNA during protein synthesis?
A. Translation
B. Replication
C. Mutation
D. Transcription
42. Which part of the human alimentary canal contains digestive enzymes that functions at acidic pH
A. Stomach
B. Mouth
C. Esophagus
D. Small intestine
43. Which of the following is made of globular proteins?
A. Enzyme
B. Keratin
C. Collagen
D. Glycogen
44. In which area of enzyme application is invertase injected to sucrose paste in order to produce liquid chocolate?
A. Detergent making industry B. Pulp and paper industry C. Pharmaceutical industry D. Food processing industry

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45. Which one of the following functions best at a higher optimum pH than all the rest?
A. Pepsin
B. Salivary amylase
C. Trypsin
D. Enzyme in stomach
46. Which class of enzyme joins two molecules together by formulation of new bonds?
A. Ligase
B. Isomerase
C. Lyase
D.Hydrolase
47. In an enzyme that contains non- protein organic molecules, in addition to the protein component, what is the protein component called?
A. Apoenzyme
B,Coenzyme
C. Holoenzyme
D. Cofactor
49. Which one of the following should be done in order to remove an enzyme inhibition caused by a competitive inhibitor?
A. Remove affected enzyme molecules
B. Add more substrate to the system
C. Remove the end product of the reaction
D . Add more inhibitors to the system.
50. How many amino acids are there in all known proteins?
A. About 10
B. About 35
C. About 20
D. About 46
51. Deficiency of which of the following nutrients in human diet is likely result in a deficiency of some coenzymes like FAD?
A. Essential amino acids B. Vitamins C, Carbohydrates D. Saturated fatty acids
52. What causes tomato fruits to ripen much more slowly when kept in a refrigerator than if left on a table at room temperature?
A. Low temperature slows the normal action of ripening enzymes
B. Enzymes produced by bacteria normally inhibit ripening
C. Humidity accelerates enzyme activity and ripening process
D. Normal temperature arrests the action of ripening enzymes
53. In what way is the lock - and -key model of enzyme molecule assumed to be different from the induced-fit model?
A. It has low turnover rate
B. It does not form enzyme-substrate complex
C. It can not effectively reduce the activation energy
D. Shape of active site and the substrate complement
54. Which of the following determines the primary structure of a polypeptide?
A. The peptide bond
B. The coding gene
C. The hydrogen bonds
D. The disulphide bridges

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55. Which property listed below is NOT true about enzymes?
A. They speed up specific chemical reactions
B. They are used up in the reaction they catalyze
C. They are affected by pH and substrate concentration
D. Small amounts can change a large amounts of substrate
56. Which of the following belongs to the class of enzymes known as transferase?
A. Kinases
B. Esterases
C, Fumerases
D.Aldolases
57. What is the functional group of the building blocks of proteins called?
A. Amino group
B. Ketone group
C. Carboxyl group
D. Aldehyde group
58. WHat is an alternative name for the enzyme pepsin?
A.Trypsin
B. Lipase
C. Gastric protease
D. Gastric polymerase
59. In which of the following is the protein structure and its description MISMATCHED ?
A. Secondary protein structure - beta pleated sheet
B. Primary protein structure - folded protein chain
C. Secondary protein structure - alpha helix structure
D. Quaternary protein structure * two or more folded chains

#Practice Question

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60. Activation energy is the energy required to
A) Get a reaction started.
B) Synthesize new compounds.
C) Break down incoming molecules.
D) All of the above.

61) An enzyme is
A) A protein catalyst.
B) Under the direct control of the DNA.
C) A substance that lowers the activation energy.
D) All of the above.

62.To be functional, an enzyme must
A) Have a specific three-dimensional shape.
B) Attach to a substrate, forming and enzyme-substrate complex.
C) Have a specific binding or attachment site.
D) All of the above.

63.The induced fit hypothesis states that
A) The substrate will bend or fold to adjust itself to the enzyme.
B) The enzyme will bend or fold to adjust itself to the substrate.
C) The amount of enzyme produced will fit the needs of the substrate.

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D) The amount of substrate will be kept constant by the enzyme itself.

64.According to which of the patterns below are most enzymes named?

A) First the molecule involved; second the type of reaction; third the "-ase" ending.

B) First the type of reaction; second the molecule involved; third the "-ase" ending.

C) First the type of reaction; second some type of description; third the "-ase" ending.

D) The molecule involved and the reaction type are interchangeable - followed by the "-ase" ending.

65. The term used for an enabling molecule is

A) Turnover regulator.

B) Binding protein.

C) Coenzyme.

D) NAD+.

66. In general, an enzyme can catalyze _____ reactions per minute.

A) Between 102 and 105

B) Between 103 and 1010

C) Between 103 and 1016

D) Between 104 and 1020

67.In enzyme-controlled reactions, an increase in temperature will usually

A) Speed up a reaction (without limits).

B) Speed up a reaction (within limits).

C) Slow down a reaction (without limits).

D) Slow down a reaction (within limits).

68. Which statement(s) is/are true?

A) Enzymes generally have a functional temperature range that is identical to its optimal temperature range.

B) When an enzyme is denatured, its spatial structure is permanently changed.

C) Most enzymes are more sensitive to low temperatures than to high temperatures.

D) All of the above.

69Which statement(s) is/are true?

A) The three-dimensional structure of a protein leaves side chains exposed and thus subject to fluctuations in pH.

B) The environmental pH is important in determining the shape of the enzyme.

C) Each enzyme has its own pH range of activity.

D) All of the above.

70. Mechanisms that ensure that an organism will carry out all metabolic processes in proper sequence are called

A) Control processes.

B) Enzymatic coordination processes.

C) Substrate inhibition processes.

D) Biochemical modulation sequences.

71.Enzymatic competition occurs when

A) Gene regulator proteins interfere with enzymatic action.

B) Several different enzymes are available to combine with a given substrate.

C) The activator and repressor proteins bind to the substrate instead of the enzyme.

D) Several different substrates are present for a given enzyme.

72. In negative-feedback inhibition, as the end product increases

A) Some of that end product binds to the substrate.

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B) Some of that end product prevents the enzyme from performing properly.
C) Some of that end product binds concurrently to both the substrate and the enzyme.
D) Other genes produce competing enzymes and thus decrease the rate of the reaction.

73.An inhibitor is a molecule that
A) Attaches itself to an enzyme and interferes with the formation of the enzyme-substrate complex.
B) Attaches itself to a substrate and interferes with the formation of the enzyme-substrate complex.
C) Binds to the enzyme-substrate complex and prevents the release of the end products.
D) Binds to the cell's DNA and prevents the formation of an enzyme.

74.In competitive inhibition, the competitor
A) Binds to the coenzyme and thus disables the enzyme itself.
B) Interferes with enzyme production.
C) Attaches to the enzyme's active site, preventing the normal substrate from doing so.
D) Acts as a pseudo-enzyme and binds non-functionally to the substrate.

75.A vitamin sometimes works as a(n):
A) enzyme.
B) inhibitor.
C) coenzyme.
D) catalyst.

76.Competition between enzymes causes:
A) enzymes to denature.
B) decreases in the formation of certain products.
C) each enzyme to function better.
D) rearrangement of active sites.

77.As the temperature of an enzyme controlled reaction is moderately increased,
A) changes in concentration of enzyme results.
B) fewer transitory molecules are formed.
C) decreases in turnover number occur.
D) more collisions occur so more of them are effective.

78.Enzyme names frequently
A) include the name of the substrate.
B) ends in -ase.
C) indicate the type of reaction they facilitate.
D) all of the above.

79.Turnover number:
A) increases as pH increases.
B) does not change relative to concentration of acid or base.
C) increases as optimum conditions are approached.
D) is constant.

80.High temperatures can
A) denature an enzyme.
B) increase an enzyme's molecular motion.
C) change the protein structure of an enzyme.
D) all of the above.

81.According to the induced-fit hypothesis

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A) the presence of the substrate causes the enzyme to adjust itself to the substrate, this creates stress on substrate bonds.
B) enzymes and substrates fit perfectly together with "lock and key" precision.
C) coenzymes alter the shape of enzyme molecules.
D) inhibitors alter the shape of substrates.

82.Coenzymes
A) are protein molecules.
B) are not altered during a reaction.
C) enable an enzyme to function.
D) all of the above.

83.Which of the following is true?
A) All enzymes work best at a neutral pH.
B) There is an optimum pH for each specific enzyme.
C) Enzymes work well at any pH higher than optimum.
D) At a low pH, an enzyme needs more kinetic energy to function.

84.With negative-feedback inhibition, as the number of end products increases,
A) enzyme activity decreases.
B) enzyme activity increases.
C) enzyme/substrate collisions become more effective.
D) inhibitors attach to substrates.

85.Chemical messengers that tell the cell to decrease the production of a certain protein are
A) coenzymes.
B) gene-repressor proteins.
C) inhibitors.
D) denatured enzymes.

86.Enzymes function by
A) lowering the activation energy required for a reaction.
B) increasing the temperature of the reaction.
C) providing activation energy to substrate molecules.
D) increasing the production of substrate.

87.Inhibitor molecules
A) react with end-products.
B) attach to substrates.
C) lower activation energy.
D) attach to enzymes.

88.To increase the amount of end-product produced in an enzyme facilitated reaction, you could
A) Boil the enzyme.
B) add inhibitors.
C) add more substrate.
D) add ice.

Answer for practice Questions(60-88)
ADDBACCBBBDABACCBDDCDACBABADC

#Model QueErepsin

89.Which of the following enzymes changes peptides into amino acids in the small intestine?
A. Pepsin

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B. Trypsin
C. Rennin
D. Erepsin.
90. Enzymes are essential in many industries. For example, amylase is used in the:
A. starch conversion and dishwater detergents
B. process of fruit juice
C. dissolving clots of heart attack patient
D. Processing of nuIIntermediateWhich class of enzymes joins molecules together?
A. Lyases C. Transferases
B. Hydrolases D. Ligases
33.Which of the following statements is TRUE about enzymes?
A. Enzymes start chemical reactions in cells
B. Enzymes are specific in their actions
C. They are destroyed in the process of the reaction
D. Enzymes have no effect on the rate of a reaction
34.The protein part of an enzyme is called
A. Coenzyme
B. Cofactor
C. Apoenzyme
D. Holoenzyme
35.The rate of chemical reactions is increased by
A. Decreasing the activation energy
B. Cooling the reaction
C. Decreasing the concentration of reactants
D. Removing a catalyst
36.An enzyme catalyzes the reaction of A to B. A third chemical C, which does not resemble A, binds to the enzyme at a position remote from the active site. This increases the activity of the enzyme. In this situation substance A is
A. A cofactor
B. The substrate
C. An inhibitor
D. The product
37.In the above question, Substance C is
A. A cofactor
B. The substrate
C. An inhibitor
D. The product
91.Which one of the following factors does NOT affect enzyme activity?
A. Enzyme concentration C. Substrate concentration
B. Temperature D. PH
92.Which one of the following is correct about apoenzymes and coenzymes?
A. Apoenzymes bind with coenzymes to give catalytic enzyme
B. Coenzymes bind with a cofactor to form active enzyme
C. Both apoenzymes and coenzymes combine to form non-active enzyme
D. Coenzyme binds with active enzyme to give catalytic enzyme
Question number is based on the following reaction

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Reactant A + reactant B + enzyme →intermediate →product AB +enzyme

93. At which point are the chemical bond weakened?

A. Product AB C. Reactant A

B. Reactant B D. Intermediate

94.Which of the following statements is TRUE about enzymes?

A. Enzymes start chemical reactions in cells

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C. They are destroyed in the process of the reaction

D. Enzymes have no effect on the rate of a reaction

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A. A cofactor

B. The substrate

C. An inhibitor

D. The product

98.In the above question, Substance C is

A. A cofactor

B. The substrate

C. An inhibitor

D. The product

99.Which of the following statements regarding enzymes is true?

A. Enzymes decrease the free energy change of a reaction.

B. Enzymes increase the rate of a reaction.

C. Enzymes change the direction of chemical reactions.

D. Enzymes are permanently altered by the reactions they catalyze.

100. The active site of an enzyme is the region that

A. binds allosteric regulators of the enzyme.

B. is involved in the catalytic reaction of the enzyme.

C. binds the products of the catalytic reaction.

D. is inhibited by the presence of a coenzyme or a cofactor.

101. According to the induced fit hypothesis of enzyme catalysis, which of the following is correct?

A. The binding of the substrate depends on the shape of the active site.

B. Some enzymes change their structure when activators bind to the enzyme.

C. A competitive inhibitor can outcompete the substrate for the active site.

D. The binding of the substrate changes the shape of the enzyme's active site.

102. Increasing the substrate concentration in an enzymatic reaction could overcome which of

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the following?

A. denaturation of the enzyme B. allosteric inhibition

C. competitive inhibition D. saturation of the enzyme activity

103. Zinc, an essential trace element for most organisms, is present in the active site of the enzyme carboxypeptidase. The zinc most likely functions as a(n)

A. competitive inhibitor of the enzyme. B. noncompetitive inhibitor of the enzyme.

C. allosteric activator of the enzyme. D. cofactor necessary for enzyme activity.