EXERCISE-I

Introduction, properties, action and inhibition of enzyme

- 1. Which of the following statements is not correct (A) All enzymes are proteins (B) All enzymes are biocatalysts (C) All proteins are enzymes (D) All enzymes are thermolabile 2. cAMP mediated 'Cascade model' of enzyme regulation was proposed by (A) Fischer (B) Sutherland (C) Sumner (D) Koshland **3.** Synthesis of enzymes take place by (A) Transamination (B) Deamination (C) Translation (D) None of the above **4.** Enzymes are absent in (A) Algae (B) Fungi (D) Virus (C) Bacteria 5. Which one of the following enzyme is not composed of simple proteins (A) Amylase (B) Pepsin (C) Urease (D) None of the above 6. Enzymes are useful to plants because (A) They are building block of chlorophyll (B) They are essential for the metabolic processes (C) They enhance absorption of water and salts (D) They responsible are for paratonic movements
- **7.** Which of the following is not an attribute of enzymes
 - (A) They are proteinaceous in nature
 - (B) They speed up the rate of biochemical reactions
 - (C) They are specific in nature
 - (D) They are used up in reactions
- 8. What is correct about enzymes
 - (A) They are most active at pH 7.0
 - (B) They are all amino acids
 - (C) They are all proteins
 - (D) They are most active at a temperature of $0^{\circ}C$
- 9. Enzymes are different from inorganic catalysts
 - (A) Not being used up in reactions
 - (B) Being proteinaceous in nature
 - (C) Having high diffusion rate
 - (D) Working at high temperature
- **10.** The enzyme used for alcohol formation by fermantation is
 - (A) Invertase (B) Lipase
 - (C) Amylase (D) Zymase
- **11.** Enzyme complex is called
 - (A) Holoenzyme (B) Apoenzyme
 - (C) Coenzyme (D) Prosthetic group
- **12.** When coenzyme is combined with apoenzyme, it is called
 - (A) Cofactor
 - (B) Holoenzyme
 - (C) Substrate enzyme complex
 - (D) Vitamin A
- 13. Non-protein part of an enzyme is known as
 - (A) Holoenzyme (B) Apoenzyme
 - (C) Coenzyme (D) All the above

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14.	The enzyme, which	combines with non-	21.	Substances which enh	ance reactions after	
	protein part to form	a functional enzyme		combining with enzymes are called		
	known as			(A) Prosthetic groups	(B) Coenzymes	
	(A) Co-enzyme	(B) Holoenzyme		(C) Inducers	(D) Inhibitors	
	(C) Apoenzyme	(D) Prosthetic group	22.	FAD or FMN is a coen	zyme. Which vitamin	
15.	Cofactor (prosthetic g	roup) is a part of		is incorporated into its st	ructure	
	holoenzyme. It is			(A) Vitamin C		
	(A) Loosely attached ino	rganic part		(B) Vitamin B ₁		
	(B) Accessory non-prote	ein substance attached		(C) Vitamin B ₆		
	firmly			(D) Vitamin B ₂ (Riboflat	vin)	
	(C) Loosely attached org	ganic part	23.	NADP is		
	(D) None of these			(A) A coenzyme	(B) A part of tRNA	
16.	Organic compounds	having transient		(C) An enzyme	(D) A part of rRNA	
	association with apoenzy	me are called	24.	Which of the following	g is not a co-enzyme	
	(A) Holoenzyme	(B) Coenzyme		(A) NAD	(B) NADP	
	(C) Prosthetic group	(D) None of the above		(C) FAD	(D) ATP	
17.	Which of the follow	ing coenzyme is a	25.	Which of the following	g is a loosely bound	
	derivative of pantother	nic acid (Vitamin B		coenzyme		
	complex)			(A) <i>Cu</i>	(B) <i>Mn</i>	
	(A) NAD	(B) NADP		(C) Zn	(D) Vitamin B ₁₂	
	(C) FAD	(D) CoA	26.	• Cytochrome oxidase enzyme contains		
18.	Co-enzyme is			(A) Magnesium	(B) Manganese	
	(A) Always a protein			(C) Iron	(D) Cobalt	
	(B) Often a vitamin		27.	Which of the following element inhibits the		
	(C) Always an inorganic	compound		activity of sulphydryl en	zyme	
10	(D) Often a metal			(A) Fe	(B) <i>Cu</i>	
19.	Coenzyme can function			(C) Zn	(D) <i>Pb</i>	
	(A) In association with a vitamin		28.	Which one of the following enzyme contains		
	(B) In association with an apoenzyme			Mn metallic ion as the prosthetic group		
	(C) Independently of the	apoenzyme		(A) Phosphatase	(B) Dehydrogenase	
• •	(D) In association with a	protein		(C) Peptidase	(D) Catalase	
20.	Which of the followin	ng is iron porphyrin	29.	9. Which one of the following enzyme contains		
	coenzyme or cofactor			<i>Mo</i> as prostnetic group		
	(A) Cytochrome	(B) FAD		(A) Phosphatase	(B) Dehydrogenase	
	(C) CoA	(D) NAD		(C) Isomerase	(D) Nitrate reductase	

- **30.** In which one of the following enzymes, is copper necessarily associated as an activator
 - (A) Lactic dehydrogenase
 - (B) Tyrosinase
 - (C) Carbonic anhydrase
 - (D) Trytophanase
- **31.** Which one of the following statements regarding enzyme inhibition is correct
 - (A) Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibitor protein
 - (B) Competitive inhibition is seen when the substrate and the inhibitor compete for the active site on the enzyme
 - (C) Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate
 - (D) Non-competitive inhibitors often bind to the enzyme irreversibly
- **32.** Telomerase is an enzyme which is a
 - (A) Simple protein (B) RNA
 - (C) Ribonucleoprotein (D) Repetitive DNA
- **33.** Which is not true for enzymes
 - (A) Enzyme is a complex structure of protein
 - (B) Enzyme can be regulated by specific molecules
 - (C) Enzyme is more sensitive for the changes of temperature and *pH*
 - (D) Enzyme functions as catalyst for various reactions
- **34.** Many of the hydrolytic reactions are
 - (A) Reversible(B) Irreversible(C) Endothermic(D) Exothermic
- **35.** DNA polymerase enzyme is responsible for the synthesis of
 - (A) DNA from RNA(B) DNA from DNA(C) RNA from DNA(D) RNA from RNA

- 36. Who proposed the principal of "Induced fit"
 - (A) Jacob (B) Fischer
 - (C) Koshland (D) Laderberg
- **37.** *Km* is related to
 - (A) Morphology
 - (B) ABO blood group
 - (C) ES complex
 - (D) Chromatography
- **38.** Template theory of enzyme action is supported by
 - (A) Enzymes occur in living beings and speed up certain reactions
 - (B) Enzymes speed up reaction
 - (C) Enzymes determine the direction of reaction
 - (D) Compounds similar to substrate inhibit enemy activity
- **39.** Jacob and Monad named those enzymes *allosteric* whose activity is regulated by
 - (A) Substrate (B) End product
 - (C) Coenzymes (D) Prosthetic groups
- **40.** When an enzyme induced product inhibits enzymatic activity, inhibition is called
 - (A) Competitive inhibition
 - (B) Non-competitive inhibition
 - (C) Feedback inhibition
 - (D) None of the above
- **41.** Number of active sites in allosteric enzyme is (A) One (B) Two
 - (C) Three (D) Four
- **42.** Enzyme inhibition caused by a substrate analogue is
 - (A) Competitive
 - (B) Non-competitive
 - (C) Incompetitive
 - (D) Semi-competitive

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- **43.** Inhibitory effect of melonic acid on succinic dehydrogenase enzyme is
 - (A) Competitive inhibition
 - (B) Non-competitive inhibition
 - (C) Feedback inhibition
 - (D) Inhibition due to end product
- 44. Competitive inhibitors (like malonate) alter
 - (A) Velocity of reaction
 - (B) Value of Km (Michelis constant)
 - (C) Active site
 - (D) Structure of enzyme
- 45. Enzyme can be made functionless by
 - (A) Removing its product as fast as it is formed
 - (B) Doubling its concentration
 - (C) Decreasing its concentration
 - (D) Blocking its active site
- **46.** Metabolic poisons which alter the structure of an apoenzyme are
 - (A) Competitive inhibitors
 - (B) Substrate analogs
 - (C) Product inhibitors
 - (D) Non-competitive inhibitors
- 47. Non-competitive inhibitors alter
 - (A) Structure of enzyme
 - (B) Structure of active site
 - (C) Velocity of enzymatic reaction
 - (D) All the above
- **48.** During glycolysis enzyme hexokinase changes glucose to glucose–6– phosphate. Glucose–6– phosphate is inhibited by
 - (A) Feedback inhibition
 - (B) Positive feedback
 - (C) Competitive inhibition
 - (D) Non-competitive inhibition

- **49.** Decline in the activity of the enzyme hexokinase by glucose 6 phosphate is caused by
 - (A) Non-competitive
 - (B) Competitive inhibitions
 - (C) Allosteric modulator
 - (D) Denaturation of enzymes
- **50.** Enzymes capable of changing their form are called
 - (A) Apoenzyme
 - (B) Holoenzyme
 - (C) Isoenzyme
 - (D) Allostearic enzymes

Classification and factors affecting enzyme

51. Nitrate reductase enzyme is responsible for the formation of

(A) N_2	(B) NO_2		
(C) NO_3	(D) Ammonia		

- **52.** The first enzyme that reduces nitrates into nitrites and ammonia in plants is
 - (A) Nitrate reductase
 - (B) Nitrite reductase
 - (C) Glutamine synthetase
 - (D) Glutamate dehydrogenase
- **53.** The enzyme responsible for atmospheric nitrogen fixation is
 - (A) Nitrogenase (B) Hydrogenase
 - (C) Oxygenase (D) Carboxylase
- **54.** At the time of cotton seeds germination, the stored food is digested by
 - (A) Diastase (B) Maltase
 - (C) Lipase (D) Amylase

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55.	• Fat is hydrolysed by enzyme lipase to yield		65.	Enzyme <i>phosphoglucomutase</i> belongs to			
	(A) Fatty acid and amino acids			(A) Oxidase	(B) Lipase		
	(B) Glycerol and fatty acids			(C) Carboxylase	(D) Isomerase		
	(C) Glycerine and water		66.	Which of the following	enzyme digests other		
	(D) Glycerol and amino	acids		enzymes			
56.	Substrate of amylase enz	zyme is		(A) Dehydrogenases	(B) Lipases		
	(A) Protein	(B) Fat		(C) Peptidases	(D) Aldolases		
	(C) Starch	(D) Sucrose	67.	The enzyme which	ch catalyzes the		
57.	Enzyme which hydrolyse	es starch to maltose is		photosynthetic C_4 cycle	photosynthetic C_4 cycle is		
	(A) Lactase	(B) Protease		(A) RuDP carboxylase	(B) PEP carboxylase		
	(C) Maltase	(D) Amylase		(C) Carbonic anhydrase	(D) None of these		
58.	Which one is not an example.	mple for hydrolases	68.	The nucleic acids are be	roken into nucleotides		
	(A) Dehydrogenase	(B) Protease		by enzymes			
	(C) Amylase	(D) Esterase		(A) Amylases	(B) Nucleases		
59.	Which enzyme diges	ts the stored food		(C) Lipases	(D) Proteases		
	material of castor seeds		69.	69. At boiling temperature an enzyme is			
	(A) Lipase	(B) Amylase		(A) Denatured	(B) Inactivated		
	(C) Diastase	(D) Protease		(C) Killed	(D) Unaffected		
60.	• In the cell digestive enzymes are mostly in		70.	As temperature changes from $3^{\circ}C$ to $45^{\circ}C$, the			
	(A) Lysosome	(B) Cell wall		rate of enzyme activity w	vill		
	(C) Ribosome	(D) Chromosomes		(A) Decrease and then in	ncrease		
61.	Enzyme concerned with	n transfer of electrons		(B) Increase and then de	crease		
	are			(C) Increase only			
	(A) Hydrolase	(B) Dehydrogenase		(D) Decrease only			
	(C) Transaminase	(D) Desmolase	71.	In most plant cells most enzymes have their			
62.	Which one of the fe	ollowing belongs to		optimum activity at			
	transferase group			(A) 20°C	(B) 25°C		
	(A) Amylase	(B) Transaminase		(C) $30^{\circ}C$	(D) 35°C		
	(C) Citrate synthetase	(D) Enolase	72.	At temperature just belo	ow the freezing point,		
63.	3. Esterase enzyme belongs to which of the			the enzyme			
	following class			(A) Is slightly activated	(B) Is destroyed		
	(A) Oxidoreductase	(B) Carboxylase		(C) Is inactivated	(D) Is uneffected		
	(C) Hydrolases (D) Transferases			Which ions are toxic in e	enzymatic activity		
64.	Fumerase enzyme belon	gs to which class		(A) Mn^{++}	(B) K^{+}		
	(A) Oxidase	(B) Carboxylase		(C) Na^{++}	(D) Hg^{++}		
	(C) Transferase	(D) Lyases					

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74.	Enzymes	are destroyed
	2	2

- (A) At very low temperature
- (B) During chemical reaction
- (C) At very high temperature
- (D) Below freezing point
- **75.** Dry seeds can endure higher temperature than the germinating seeds because
 - (A) Dry seeds have more reserve food
 - (B) Hydration makes the enzymes more sinsitive to temperature
 - (C) Dry seeds are hard
 - (D) The seedlings are tender
- **76.** In seeds, digestion is made possible at relatively low temperature by
 - (A) Proteins
 - (B) Enzymes
 - (C) Auxins
 - (D) Nitrogenous complex substances
- 77. Zymogens are
 - (A) Enzyme acting upon starch
 - (B) Group of zymase enzymes
 - (C) Inactive enzyme precursors
 - (D) None of the above
- **78.** Enzymes which are slightly different in molecular structure but can perform identical activity are called
 - (A) Isoenzymes (B) Holoenzymes
 - (C) Apoenzymes (D) Coenzymes
- **79.** Enzyme having different molecular arrangement but similar functions is
 - (A) Isoenzyme (B) Holoenzyme
 - (C) Apoenzyme (D) Co-enzyme
- **80.** Lactic dehydrogenase (LDH) which catalyzes pyruvate to lactate is an example of
 - (A) Apoenzyme (B) Antienzyme
 - (C) Isoenzyme (D) Coenzyme

Carbohydrates, Starch and Protein

- 81. Pentoses and hexoses are the most common(A) Disaccharides(B) Monosaccharides(C) Oligosaccharides(D) Polysaccharides
- **82.** Corn is immersed in the boiling water. It is then cooled, the solution becomes sweet. It is due to
 - (A) Enzymes are inactivated in boiling water
 - (B) Disaccharides are converted to monosaccharides
 - (C) Monosaccharides are converted to disaccharides
 - (D) None of these
- **83.** Final product of starch digestion is

(A) Maltose	(B) Sucrose		
(C) Lactose	(D) Glucose		

- 84. Cellulose are polymers of
 - (A) Disaccharides of glucose
 - (B) Polysaccharides of glucose
 - (C) Disaccharides of microfibrils
 - (D) Polysaccharides of microfibrils
- 85. Simplest form of carbohydrate is
 - (A) Carbon (B) Starch
 - (C) Monosaccharide (D) Canesugar
- **86.** Sucrose, a common table sugar, is composed of
 - (A) Glucose + fructose
 - (B) Glucose + galactose
 - (C) Fructose + galactose
 - (D) None of these
- **87.** Which is non-reducing sugar
 - (A) Glucose (B) Galactose
 - (C) Mannose (D) Sucrose

88.	Sugar and amino acids are		97. Aleurone grains are			
	(A) Primary metabolites			(A) Enzymes	(B) Carbohydrates	
	(B) Secondary metabolit	es		(C) Protein	(D) Fat	
	(C) Feed stock		98.	High content of lysine is	s present in	
	(D) Inoculum			(A) Wheat	(B) Apple	
89.	A complex polysaccha	aride produced from		(C) Maize	(D) Banana	
	sucrose by the bac	cterium Leuconostoc	99. Which of the following is polymerized to form			
	<i>mesenteroides</i> is :			proteins		
	(A) Chitin	(B) Starch		(A) Protein	(B) Carbohydrates	
	(C) Cellulose	(D) Dextran		(C) Amino acid	(D) Muramic acid	
90.	The chemical formula of	starch is	100	Basic structure of protei	n was given by	
	(A) $(C_6 H_{10} O_5)_n$	(B) $(C_6 H_{12} O_6)_n$		(A) Stanley	(B) Nicholson	
	(C) $C_{12}H_{22}O_{11}$	(D) CH ₃ COOH		(C) Watson	(D) Singer	
91.	Oval shaped and eccent	ric starch particles are	101	101.Inspite of gaining complete glucose, plants		
	found in			stores fructose in ripening fruits because in		
	(A) Wheat	(B) Maize		comparison of glucose, fructose is		
	(C) Potato	(D) Rice	(A) More sweet			
92.	Which one of the following is a conjugate			(B) Release more energy at the time of		
	protein		oxidation			
	(A) Globulin	(B) Albumin	(C) More stable for oxidation			
	(C) Histone	(D) Flavoprotein	103	(D) Occupy less space	maat ahuu daut	
93.	93. Glycoproteins contain(A) Protein and fat(B) Protein and salt(C) Protein and vitamin		 102. Carbohydrates, the most abundant biomolecules on earth, are produced by (A) All bacteria, fungi and algae (B) Fungi, algae and green plant cells (C) Some bacteria, algae and green plant cells 			
	(D) Protein and carbohydrates		(D) Viruses fungi and bacteria			
94.	What are the most diversed molecules in the		103	103 . During strenous exercise glucose is converted		
	cell		into			
	(A) Lipids	(B) Proteins		(A) Glycogen	(B) Pyruvic acid	
	(C) Carbohydrates	(D) Mineral salts		(C) Starch	(D) Lactic acid	
95.	No cell could live without	ut	104. In which form does the food transported in			
	(A) Phytochrome	(B) Enzymes		plants	1	
-	(C) Chloroplasts	(D) Protein		(A) Sucrose	(B) Fructose	
96.	α -helical model of prote	in was discovered by		(C) Glucose	(D) Lactose	
	(A) Pauling and Correy (B) Watson					
	(C) Morgan	(D) Berzelus				

105.Cellulose is a

- (A) Monosaccharide
- (B) Disaccharide
- (C) Homoglycan pentosan
- (D) Homoglycan hexosan

Nucleotides and Nucleic acid

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106. Which	of the	tollov	ving	1S (a purine

- (A) Prokaryotes(B) Guanine(C) Thymine(D) Uracil
- **107.**ATP is
 - (A) Adenosine D-ribose three phosphate
 - (B) Adenosine L-ribose three phosphate
 - (C) Adenine D-ribose three phosphate
 - (D) Adenine L-ribose three phosphate

108.ATP is

(A) Nucleotide	(B) Nucleoside
(C) Nucleic acid	(D) Hormone

109.Thymine is a

(A) Enzyme	(B) Vitamin
(C) Pyrimidine	(D) Purine

- 110. Who proved that DNA is a genetic material
 - (A) Jacob and Monad
 - (B) Avery, Mcleod and McCarthy
 - (C) Griffith
 - (D) Harshey and Chase
- 111.DNA is concentrated in
 - (A) Chromatin as DNA protein complex
 - (B) Ribosomes
 - (C) Golgi bodies
 - (D) Plastids
- 112.Strands of DNA are bonded by
 - (A) Hydrogen (B) Carbon
 - (C) Oxygen (D) Nitrogen

- **113.**RNA contains
 - (A) Hexose sugar
 - (B) Deoxyribose sugar
 - (C) Dextrose sugar
 - (D) Ribose sugar
- **114.** A DNA strand is directly involved in the synthesis of following except
 - (A) Another DNA (B) Protein synthesis
 - (C) tRNA molecule (D) mRNA molecule
- 115.In DNA guanine pairs with
 - (A) Cytosine (B) Thymine
 - (C) Uracil (D) Adenine
- **116.**In DNA molecule, which of the following base pair is present
 - (A) Cytosine and adenine
 - (B) Adenine and thymine
 - (C) Adenine and guanine
 - (D) Cytosine and thymine
- **117.**DNA is not found in
 - (A) Chromatin (B) Nucleus
 - (C) Nucleolus (D) Cytoplasm
- **118.**The transformation experiments on *Pneumococcus* showed that
 - (A) DNA can duplicate itself
 - (B) RNA is the genetic material
 - (C) DNA is the genetic material
 - (D) None of these

119. The base pairs of DNA are correctly shown as

- (A) $A \equiv T$ and C = G
- (B) A = T and C = G
- (C) A = T and $C \equiv G$
- (D) $A \equiv T$ and $C \equiv G$
- 120.Pentose sugar present in nucleic acid is
 - (A) Ribulose (B) Ribose
 - (C) Raffinose (D) Xylulose

121.Purines are	126.A nucleoside differs from a nucleotide in not			
(A) Single ring compounds	having			
(B) Double ring compounds	(A) Phosphate	(B) Sugar		
(C) Straight chain compounds	(C) Phosphate and su	ugar (D) Nitrogen base		
(D) None of the above	127. How many nucleotides are present in one turn			
122. DNA is	of DNA helix	of DNA helix		
(A) Always double stranded	(A) 4 pairs	(B) 8 pairs		
(B) Rarely single stranded	(C) 10 pairs	(D) 9 pairs		
(C) Always single stranded	128. The similarity between	een DNA and RNA is that		
(D) Rarely double stranded	both are			
123. Which of the following is capable of self	(A) Double stranded			
replication	(B) Having similar sugars			
(A) An enzyme	(C) Polymers of nuc	leotides		
(B) A carbohydrate molecule	(D) Having similar pyrimidines			
(C) A water molecule	129. DNA is a polymer of	f		
(D) A nucleic acid	(A) Nucleotide	(B) Nucleoside		
124.DNA was first discovered by	(C) Amino acids	(D) All of the above		
(A) Beadle and Tatum	130. How many types of nucleotides are commonly			
(B) Watson and Crick	found			
(C) Friedrich Miescher	(A) One	(B) Two		
(D) Kornberg	(C) Three	(D) Four		
125.Ultraviolet light absorbed by nucleic acid is				
(A) 26 <i>nm</i> (B) 75 <i>nm</i>				
(C) 260 <i>nm</i> (D) 1500 <i>nm</i>				