			[Time : Three hours]		[Marks: 100]
			Please check whether you have received the right question paper		
N.B:			1. **All questions carry equal marks**		
			2. **Attempt all questions**		

Q.I	A.		Define the following:	(05)
		i)	i)Nucleophiles – they are electron rich compounds are negatively charged or contain unshared electron pairs that easily form covalent bonds with electron deficient centres.	
		Ii)	ii) Transcriptomics – is the study of a cell's transcriptome i.e. its entire complement of RNAs.	
		Iii)	Km: Km is Michaelis-Menten constant. It is the [S] at which Vo is exactly half of Vmax.	
		Iv)	Irreversible Inhibition: The **irreversible inhibitors** are those that bind covalently with or destroy a functional group on an enzyme that is essential for the enzyme's activity, or those that form a particularly stable noncovalent association	
		v)	Electrophoresis is the migration of charged particles under the influence of electric field. Many biological molecules such as amino acids, peptides, proteins, nucleic acids possess ionisable groups hence migrate either to the cathode or anode depending on the nature of their net charge and therefore can be separated.	
Q.1	B.		State whether the following statements are true or false:	(05)
		i)	True	
		Ii)	True	
		Iii)	True	
		Iv)	False	
		v)	True	
Q.I	C.		Give one example for each of the following:	(05)
		i)	1H, 13C ,31P.	
		Ii)	Electron transport and oxidative phosphorylation	
		Iii)	Co-enzymes derived from nicotinic acid: NAD, NADP	
		Iv)	Silica gel, alumina.	
		v)	Ninhydrin.	
Q.I	D.		Select the most appropriate alternative:	(05)
		i)	Closed	

		Ii)	Transferase	
		Iii)	Substrate concentration and enzyme activity	
		iv)	DNA.	
		v)	Aluminium alloy	
Q.2	A		**Answer any two of the following:**	(20)
		i)	ANSWER ………..	
		Ii)	What is LB plot? Give significance of LB plot. (Lehninger 205-206)	
		Iii)	pg 20-21 Instrumental methods of chemical analysis V.K Ahluwalia	
Q.3	A.		**Answer any three of the following:**	**(18)**
		i)	Pgs 561, 562.	
		Ii)	Pg 581	
		Iii)	Pg 582	
		Iv)	Pg 584	
		v)	Pg 582	
		vi)	Pgs 576 – 578.	
Q.3	B.		**Do as directed:**	**(02)**
		i)	pg 563,	
		ii)	ATP, NADPH.	
		iii)	pg 577	
		iv)	pg 569.	
Q.4	A.		**Answer any three of the following:**	**(18)**
		i)	What is enzyme? Write the properties of enzyme. (Lehninger 191-192)	
		ii)	Differentiate between MWC and KNF model of allosteric regulation (Lehninger 167-170)	
		iii)	Compare and contrast between competitive inhibition and mixed inhibition (Lehninger 209-211)	
		Iv)	Explain the mechanisms of multisubstrate reactions (Lehninger 207-208)	
		v)	Write short note on effect of pH and Temp on enzyme activity (Lehninger 212 for pH)	
		vi)	Enlist any 6 coenzymes with the type of chemical group transferred by them. (Lehninger 192)	

Q.4	B.		Do as directed:	(02)
		i)	Define prosthetic group: A coenzyme or metal ion that is very tightly or even covalently bound to the enzyme protein is called a **prosthetic**	
		ii)	Write MM equation: $$V_0 = \frac{V_{max}[S]}{K_m + [S]}$$	
		iii)	Vmax is the maximum rate of enzyme catalysed reaction.	
		iv)	Rate of [ES] formation = Rate of [ES] breakdown	
Q.5	A.		Answer any three of the following:	(18)
		i)	pg584-586 Practical Biochemistry 5th ed, Keith and Walker	
		Ii)	pg283-284 Principles &techniques of biochemistry 5th ed,Wilson and Walker.	
		Iii)	pg35 Instrumental methods of chemical analysis V.K Ahluwalia	
		Iv)	pg288-289 Principles &techniques of biochemistry 5th ed,Wilson and Walker	
		v)	pg 27-29 Instrumental methods of chemical analysis V.K Ahluwalia	
		vi)	pg271-274 Principles &techniques of biochemistry 5th ed,Wilson and Walker	
Q.5	B.		Do as directed:	(02)
		i)	Buffer is essential to maintain a constant state of ionization of the molecules being separated.	
		ii)	To sediment viruses or organelles like ribosomes.	
		iii)	Bromocresol green	
		iv)	Rg value is distance moved by monosaccharides / distance moved by D-Glucose.	