## VITHALBHAI PATEL & RAJRATNA P.T. PATEL SCIENCE COLLEGE VALLABH VIDHYA NAGAR

## SEM: III INTERNAL TEST SUB: INSTRUMENTATION (VOC.) SUB CODE: US03CINV02

DATE: 01<sup>st</sup> Oct. 2013 TIME: 1:00 pm to 2:30 pm TOTAL MARKS: 30

Q-1		Choose the correct answer.			[06]
	(1)	In the block diagram of op-amp the second stage is			
		(a)Input stage	(c)Intermediate stage		
		(b)Output stage	(d)Level shifting stage	R. Sch	ance
	(2)	is/are ideal characteristics of the ideal op-amp.			19:
		(a)zero output resistance	(c)infinite slew rate	101	ov ! Ell
		(b) infinite voltage gain	(d)all of above	ILIBRA	n 18
	(3)	The differential D.C. op-amp is mostly used to amplify output of			
		(a)Transducer	(c)high pass filter	* LVN	293
		(b)low pass filter	(d)none of above		/
	(4)	Current to voltage converter or	p-amp is also known as	op-amp.	
		(a)Trans-resistive	(c) Trans-inductive		
		(b)Trans - capacitive	(d) None of this		
	(5)	Active filter use component basically for filtration.			
		(a)Op-amp	(c)Flip -flop		
		(b)Logic gate	(d)All of above		
	(6)	In band pass filter frequency is eliminated.			
		(a)Low and high	(c)All		
		(b)Intermediate	(d)Zero		
Q-2		Short questions, attempt any three (each two marks)			[06]
	(1)	Explain phase shift amplifier.			
	(2)	Just draw pin diagram of IC 741 with name of pins, and draw symbol of op-amp.			
	(3)	Explain current to voltage converter in short.			
	(4)	Explain A.C. voltage follower in short.			
	(5)	Give a difference of active and passive filter.			
	(6)	Explain in short ideal filter characteristics.			
Q-3	(A)	Derive complete equation for i	nverting op-amp in detail.		[03]
	(B)	Derive complete equation for non-inverting op-amp in detail.			[03]
			OR		
Q-3	(A)	In non-inverting op-amp have	0.6 volt as input, feedback resi	stance $(R_f) = 420 \Omega$ , input	[03]
		resistance $(R_{in}) = 70 \Omega$ . Find out gain and output voltage of op-amp.			
	(B)	Explain Ideal characteristics of Ideal op-amp.			[03]
Q-4		Derive an equation for integrat	or and explain in detail.		[06]
			OR		
Q-4		Derive an equation for Differentiator and explain in detail.			[06]
Q-5		Explain instrumentation am	p.		[06]
			OR		
Q-5		Explain first order Butterwo	rth low pass filter in detail.		[06]

-: ALL THE BEST: -