]	Enrollme	ent No: _			
			C.U.SHAH U	JNIVERSITY	
			Summer Exa	mination-2018	
:	Subject I	Name: Ins	strumentation and sensors		
;	Subject (Code: 4SC	C06ISE1	Branch: B.Sc. (Physics)	
;	Semester	:: 6	Date: 07/05/2018	Time: 02:30 To 05:30	Marks: 70
]	(2) I (3) I	Jse of Pro nstruction Draw neat	-	other electronic instrument is prook are strictly to be obeyed. essary) at right places.	ohibited.
Q-1		Attempt	the following questions:		(14
	a)	Define b	io sensors.		
	b)	What are	smart sensors?		
	c)	List maj	or applications smart sensors	3.	
	d)	Write fu	ll name of CRO and CRT.		
	e)			ity and deflection factor with unit	es for CRT.
	f)		ssification of optical fiber se		
	g)		potentiometric resistance tr	ansducers?	
	h)		apacitive transducers.		
	i) j)		Inudsen gage. fferent method for temperatu	ire measurement	
	k)		pm in term of air pollution r		
	l)	-	<u>-</u>	d compounds responsible for air p	ollution.
	m)		gas chromatography?	_	
Atten	n) ipt any f		ock diagram for non dispersi ions from Q-2 to Q-8	ve infrared gas analyzer.	
Q-2		Attempt	all questions		(14
	(a)	Discuss	and explain the optical fiber	sensor technology.	7
	(b)	What is	he potential application of b	iosensors?	
					4
	(c)	Write ma	nin advantages and disadvan	tages of smart sensors.	3



Attempt all questionsWhat is CRO? Explain principle and working of CRO with subsystems.

Q-3

(a)

(14)

7

	(b)	What is CRT? Discuss construction and working principle of CRT.	7
Q-4	(a)	Attempt all questions Name different types of microphones; discuss any two giving construction and working.	
	(b)	Name methods to determine air pollution parameters. Discuss in detail Orsat apparatus for air pollution and analysis.	7
Q-5	<i>(</i>)	Attempt all questions	(14)
	(a)	Write detail note on non electrical methods for temperature measurements.	7
	(b)	Write detail note on electrical methods for temperature measurements	7
Q-6	(a)	Attempt all questions Write detail note on pyrometric radiation methods for temperature measurements	(14) 7
	(b)	Name the low pressure or vacuum measurement devices. Narrate McLeod gage and thermal conductivity – Pirani gage.	7
Q-7		Attempt all questions	(14)
	(a)	Describe moderate pressure measurement by manometers in details.	7
	(b)	Explain the working principle of Piezo electric transducer.	7
Q-8	(a)	Attempt all questions Discuss working principle with simplified circuit of opto electrical transducers.	(14) 7
	(b)	Write a short note on "Resistance strain gage bridges".	7

