Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Analog and Digital Electronics

Subject Code: 5SC01ADE1 Branch: M.Sc. (Physics)

Semester: 1 Date: 03/12/2018 Time: 2:30 To 5:30 Marks: 70

Instructions:

(1) Use of Programmable calculator and any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

SECTION – I

Q-1		**Attempt the Following questions**	**(07)**
	a.	Define reverse recovery time.	**02**
	b.	What is an OP-AMP?	**01**
	c.	Give the full form of LDR.	**01**
	d.	State the basic principle of light emitting diode.	**01**
	e.	Define CMRR.	**01**
	f.	What is slew rate?	**01**
Q-2		**Attempt all questions**	**(14)**
	a.	Explain with a proper diagram the principle, construction and working of a Light Emitting Diode.	**07**
	b.	Justify the use of diode as a clipper.	**07**
		OR	
Q-2		**Attempt all questions**	**(14)**
	a.	Discuss the use of OP-AMP as a comparator and an inverter.	**09**
	b.	Explain in detail a Monostable Multivibrator with proper circuit diagram.	**05**
Q-3		**Attempt all questions**	**(14)**
	a.	Briefly describe the construction, working and applications of a Photo diode.	**06**
	b.	Write a note on Schmitt trigger using op-Amp.	**05**
	c.	Explain in detail the use of diode as a switch.	**03**
		OR	
Q-3		**Attempt all questions**	**(14)**
	a.	Elaborate the construction, working and applications of a Light Dependent Resistor.	**07**
	b.	Write a short note on Photo transistor.	**07**

SECTION – II

Q-4		**Attempt the Following questions**	**(07)**
	a.	Define Shift Register.	**02**
	b.	What is a De-multiplexer?	**02**
	c.	What are Encoders?	**01**
	d.	Give the logic circuit of S-R-latch flip flop.	**01**
	e.	Define Audio power Amplifier.	**01**
Q-5		**Attempt all questions**	**(14)**
	a.	What do you understand by a Multiplexer? Briefly explain a basic 2-input multiplexer with its logic diagram and truth table.	**06**
	b.	Describe a class-B push-pull power amplifier with proper circuit diagram also mention its advantages and disadvantages.	**05**
	c.	Differentiate between Voltage and Power Amplifiers	**03**
		OR	
Q-5		**Attempt all questions**	**(14)**
	a.	Write a brief note on D-flip flop.	**05**
	b.	Explain the working of Half adder with proper logic, circuit diagram and truth table.	**06**
	c.	Draw the logic diagram of MASTER-SLAVE JK flip flop.	**03**
Q-6		**Attempt all questions**	**(14)**
	a.	Elaborate with proper circuit diagram the working of a class-A push-pull power amplifier. Mention its advantages and disadvantages.	**07**
	b.	Explain along with logic diagram and truth table: i)BCD-Decimal Decoder ii) 2-line to 4-line decoder using NAND Gates.	**07**
		OR	
Q-6		**Attempt all Questions**	**(14)**
	a.	Explain in detail Shift register mode of Serial input - Serial output with its logic diagram.	**07**
	b.	Describe the working of S-R latch flip flop using NAND Gates. Mention its truth table also.	**05**
	c.	Define RAM.	**02**