

# C.U.SHAH UNIVERSITY

## Summer Examination-2016

**Subject Name : Solid State Electronics**

**Subject Code : 4SC06SEC1 Branch : B.Sc.(Physics)**

**Semester : 6 Date :13/05/2016 Time : 02:30 To 05:30 Marks : 70**

**Instructions:**

- (1) Use of Programmable calculator & 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.

<b>Q-1</b>	<b>Attempt the following short answer type questions:</b>	<b>(14)</b>
	a) Write two characteristics of digital circuits.	2
	b) Define modulation.	1
	c) Define 'mechanical switch'	1
	d) Draw symbols for PNP and NPN transistors	1
	e) Write full forms of 'SCR, TRIAC, DIAC, Op-Amp'	2
	f) Discuss ideal characteristics of an Op-Amp.	2
	g) Explain the classification of ICs..	2
	h) Write the limitations of thyristors.	2
	i) Define 'Electromagnetic Spectrum'.	1

**Attempt any four questions from Q-2 to Q-8**

<b>Q-2</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a. Explain Switching action of a Transistor. Draw suitable figures and use appropriate formulae to describe the same.	5
	b. Explain the principle and operation of SCR.	5
	c. Compare clipping and clamping circuits.	4
<b>Q-3</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a. Write short notes on:	<b>10</b>
	i. Multi-vibrators	
	ii. Comparison between Thyristor and Transistor	
	b. Describe the illumination Control using DIAC & TRIAC	4
<b>Q-4</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a. Enlist various types of modulations. Explain AM in detail.	<b>8</b>
	b. Describe varactor modulator. Discuss its need to understand the concept of communication system using varactor modulator.	<b>6</b>
<b>Q-5</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a. Write short notes on :	<b>10</b>



	<ul style="list-style-type: none"> <li>i. Single side band communication</li> <li>ii. Diode detector</li> </ul>	
<b>b.</b>	Define the term 'monostable' and explain its applications.	<b>4</b>
<b>Q-6</b>	<b>Attempt all questions</b>	<b>(14)</b>
<b>a.</b>	Write technical note on Solid State Switching Circuits using Thyristor	<b>7</b>
<b>b.</b>	Explain the theory, principle, function, advantages, disadvantages, applications and limitations of electronic switches.	<b>7</b>
<b>Q-7</b>	<b>Attempt all questions</b>	<b>(14)</b>
<b>a.</b>	Explain following circuits using Op-Amp <ul style="list-style-type: none"> <li>i. Adder</li> <li>ii. Integrator</li> </ul>	<b>8</b>
<b>b.</b>	Describe, how are monolithic ICs made?	<b>6</b>
<b>Q-8</b>	<b>Attempt all questions</b>	<b>(14)</b>
<b>a.</b>	Explain the Phase modulation in detail.	<b>6</b>
<b>b.</b>	Write short notes on <ul style="list-style-type: none"> <li>i. Differentiator</li> <li>ii. Comparator</li> </ul>	<b>8</b>

