

Reg.No. \_\_\_\_\_



# Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)  
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

## End Semester Examination – Nov/Dec – 2016

Code : 15PH3005  
Sub. Name : Semiconductor Physics

Semester : 2016-17 ODD  
Duration : 3hrs  
Max. marks : 100

### ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	Explain the working of Silicon controlled rectifier draw its I-V characteristics	1	10
	b.	Demonstrate UJT as relaxation oscillator .	1	10
(OR)				
2.	a.	Distinguish the transfer characteristics of different Field effect characteristics	1	10
	b.	With suitable diagrams distinguish the Enhancement MOSFET and the Depletion MOSFET.	1	10
3.	a.	Apply the Photolithographic technique in fabricating Integrated circuit	1	20
(OR)				
4.	a.	Draw the schematic for the diffusion chamber of semiconductor processing and explain the processess	1	20
5.	a.	With suitable summing amplifier diagram and virtual ground equivalent circuit, calculate the output voltage of an op-amp for the voltages and resistors as $V_1 = 2V$ , $V_2 = 4V$ , $V_3 = 6V$ , $R_1 = 500\text{ k}\Omega$ , $R_2 = 1\text{ M}\Omega$ , $R_3 = 1\text{ M}\Omega$ . The voltage shunt feed back resistance $R_f = 1\text{ M}\Omega$	1	10
	b.	Give the schematic representation of Basic operational amplifier acting as a differentiator	1	10
(OR)				
6.	a.	Explain how op-amp can be modified as monostable multivibrator.	1	10
	b.	With the virtual ground equivalent circuit, explain how the op-amp will act as an summing amplifier	1	10
7.	a.	Describe the internal architecture of 8085 microprocessor and explain the functional parts of the Execution unit.	1	20
(OR)				
8.	a.	Explain the different addressing modes of 8085 microprocessor	1	10
	b.	What are status registers and segment registers in 8085	1	10
<b><u>Compulsory:</u></b>			1	
9.	a.	Demonstrate the Demorgans theorem using logic gates	1	10
	b.	Draw the logic diagram of 2176 EPROM memory and explain the salient features.	1	10

ALL THE BEST