

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 : **14EC3053**
 Sub. Name : **Design of Semiconductor Memories**

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.	With neat diagram explain the operation of a 3T and 1T DRAM cell.	CO2	16
	b.	Differentiate between hard error and soft error	CO1	4
(OR)				
2.	a.	Justify the usage of trench capacitor in the design of high density DRAM.	CO1	4
	b.	With neat diagram explain the read, write operation of a conventional SRAM cell and the operation of its peripheral circuits (write circuitry and sense amplifier).	CO2	16
3.	a.	Justify the need for OTP EPROM	CO1	5
	b.	Indicate different memory cell design of PROM and explain how the cells are programmed.	CO3	15
(OR)				
4.	a.	Justify that DRAM is used in Main memory.	CO1	5
	b.	Describe with necessary diagrams, different types of application specific SRAM.	CO1	15
5.	a.	Define Fowler-Nordheim tunneling mechanism with diagram.	CO1	5
	b.	With neat diagrams discuss about different EEPROM technologies and their impact on the performance of EEPROM.	CO3	15
(OR)				
6.	a.	Explain how programming and reading is done in NAND structured cell EEPROM architecture.	CO2	16
	b.	List the differences between volatile and non-volatile memories with examples.	CO1	4
7.	a.	With state diagram, indicate how a 0 to 1 transition fault occur in a memory cell	CO2	5
	b.	Explain about IDDQ Fault modeling and Testing.	CO2	15
(OR)				
8.	a.	Explain in detail about parametric testing in memories.	CO2	15
	b.	List three types of observable degradation effects upon exposing memories to ionizing radiation.	CO3	5
<u>Compulsory:</u>				
9.	a.	Mention the difference between digital memories and analog memories.	CO2	4
	b.	With neat diagram of FRAM hysteresis curve explain the polarization effect, FRAM cell and memory operation.	CO2	16

ALL THE BEST