

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 : 16NT3002
Sub. Name : Nanoelectronics

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.	What is meant by Silicon on Insulator (SOI), Compare MOS on Bulk Silicon and MOS on SOI with neat diagram?	CO1	14
	b.	Write short note on spin transistor.	CO1	6
(OR)				
2.	a.	Explain the working of Single Electron Transistor with neat diagram and with the help of Coulomb blockade.	CO2	20
3.	a.	Explain about the tunnelling element technology (Tunnel Diode) and describe about Resonant Tunnelling diode with its I-V characteristics.	CO2	20
(OR)				
4.	a.	Explain about working principle of Gas Sensitive Field Effect Transistor with its neat diagram.	CO2	10
	b.	Brief about the Molecular electronics and explain about the molecular devices with its molecular structures.	CO2	10
5.	a.	Explain about drain induced barrier lowering (DIBL) with band structure of MOS transistor.	CO1	12
	b.	Discuss about various split gate transistor.	CO1	8
(OR)				
6.	a.	Explain about the Super Capacitor as an energy storage devices, with neat diagram explain its working principle?	CO2	14
	b.	Short note on Carbon Nanotubes and discuss about it applications	CO1	6
7.	a.	Explain the principles and operation of SAW and BAW based devices for sensor applications.	CO2	12
	b.	Explain about various Software tools used for modeling the Nanodevices.	CO2	8
(OR)				
8.	a.	Discuss in detail about the basics UV lithographic techniques used for fabrication of devices?	CO1	10
	b.	Define MEMS and also discuss about CMOS-MEMS with its various fabrication techniques?	CO1	10
<u>Compulsory:</u>				
9.	a.	Explain about Quantum cellular automate with various configuration includes wire, inverter and other logical gates?	CO2	20

ALL THE BEST