

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M.TECH / PRE-PHD
BRANCH: ECE

SEMESTER : II/NA
SESSION : SP/2023

SUBJECT: EC592 NANO-ELECTRONIC DEVICES AND MATERIALS

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	What is MOSFET scaling? Show various types of scaling.	[5] CO1	1
Q.1(b)	Elaborate on the drawbacks of the PD SOI CMOS process and its effect on implications for circuit styles?	[5] CO2	2
Q.2(a)	Examine a broad overview of the CVD process's synthesis to create CNTs	[5] CO1	3
Q.2(b)	Describe post-synthetic techniques employed to produce CNTs that are perpendicularly aligned.	[5] CO2	2
Q.3(a)	Explain the characteristics and principles regulate the Schottky-Contact in CNTFETs?	[5] CO1	3
Q.3(b)	List a few post-synthetic techniques that were utilized to produce CNTs that were perpendicularly aligned.	[5] CO1	1
Q.4(a)	List the methods for assembling CNTs? Which of them is most popular and discuss it in brief?	[5] CO2	3
Q.4(b)	Show that features and principles govern the Schottky-Contact in CNTFETs?	[5] CO2	3
Q.5(a)	Illustrate how molecular electronics and spintronics affect the creation of new memory technologies?	[5] CO2	4
Q.5(b)	Demonstrate the characteristics and operation of Schottky-Contact in CNTFETs.	[5] CO3	3

.....28/04/2023.....E