

Indian Institute of Technology Patna

Bihta, Patna – 801103, India DEPARTMENT OF PHYSICS

		ER EXAMINATION	DATE: 23-11-2017	
Time: 3 hour COURSE NO			Fi	ull Marks: 50
	e: PH401 COURSE TITLE: Introduction stable structure possible with 65		Attempt	all Questions
are re	quired to construct smallest fulle	arene structure? Writ	a the structural parameters (N	many carbon ato
vertice	es etc.) for smallest fullerene struct	ture	e the structural parameters (N	The second of th
	s etc.) Tot smallest falletelle strac	Or Or		1
Detern	nine the diameter for the following		5) (44 57) and (18 72) Identify	the about fact and
of nan		s nanotabes. (6,6), (6,.	(18,73), identity	the electrical nati
		a in diagnoscale (1CD	n = 10 ⁹ N = ⁻² \ = 6 = -1	1
order?	s the theoretical tensile strength of Assume that all bonds stretch t	os in gigapascais (16P	a = 10 Nm) of carbon – carbon	bonds of differe
earth's	gravitational pull are these bonds	able to hold without	brooking?	
cartif	Bond	Bond	E CONTRACTOR OF THE CONTRACTOR	[
	Bolla	length	Bond dissociation ener (kJ.mol ⁻¹)	gy
		(nm)	(kJ.moi)	
	C-C	0.154	348	-
	C=C	0.142	480	
	C=C (both covalent)	0.134	614	
	C≣C	0.120	839	-
. Write a	short note on Materials classifica		033	
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