

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 : 14CH2023	Semester : 2016-17 ODD
Sub. Name : Applied Nanochemistry and Next Generation Materials	Duration : 3hrs
	Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	What do you mean by nanoparticles and their classifications? Give examples		6
	b.	What is bottom-up method and how is used to prepare 1D nanostructures		8
	c.	How will you prepare metallic nanoparticles? Write its procedure		6
	d.			
	e.			
(OR)				
2.	a.	How nanoparticles are prepared by Sol-Gel method- Explain?		8
	b.	Discuss the top down approach for the synthesis of nanoparticles		6
	c.	How will you synthesis Silver nanoparticles in the laboratory?		6
	d.			
	e.			
3.	a.	Explain the fundamentals of film growth by various nucleation modes		6
	b.	Discuss the conditions for the growth of single crystal films, amorphous films and polycrystalline films		9
	c.	Write the concept of physical vapour deposition (PVD) for the growth species		5
	d.			
	e.			
(OR)				
4.	a.	How will you get nanofibres by Electrospinning technique, explain with diagram?		6
	b.	What do you mean by MBE ? Explain its working components with diagram?		8
	c.	Describe the concept of Sputtering for the formation of thin films		6
	d.			
	e.			
5.	a.	How the CNT is synthesized by Arc Discharge and Laser ablation methods		10
	b.	Discuss the general characteristic and classifications of Inorganic Nanoparticles		5
	c.	Describe the CVD method of synthesis of carbon nanotubes		5
	d.			
	e.			
(OR)				
6.	a.	Write a notes on zeolites and its three types of crystal building units		8
	b.	Discuss the various method of synthesis of Fullerenes and its applications		10
	c.	Write the process of photionisation of C60 ions		2
	d.			
	e.			
7.	a.	Describe the working principle of STM technique with diagram		10
	b.	Write a notes on Organic-Inorganic hybrids and their two classes		6
	c.	Write the various applications of inorganic nanocomposites		4
	d.			
	e.			

(OR)				
8.	a.	Specify cantilever based probe microscopy and discuss its working principles with diagram?		10
	b.	Discuss the structures of metal oxide nanocomposites		6
	c.	What do you mean by core shell nano composites		4
	d.			
	e.			
	<u>Compulsory:</u>			
9.	a.	Explain the various components present in the TEM and their functions		8
	b.	How the electron behavior in STM differs from other microscopical techniques		6
	c.	Discuss the various applications of the nanoparticles in the area of Energy and Healthcare		6
	d.			
	e.			

ALL THE BEST

*-unnecessary/extra rows can be deleted

*-course outcome (CO1,CO2...)should be included

Kindly remove the yellow shaded lines before publishing