Sanjay Ghodawat University, Kolhapur

2020-21

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/00

Year and Program: 2020-21 PG	**School of Science**	**Department: Physics**
Course Code: PHS623	**Course Title: Nanoscience II**	**Semester : III**
Day : Friday **Date: 18.12.2020**	**End Semester Examination**	**Time:2 Hrs.** **Max Marks:50**

Instructions: 1) All Questions are compulsory.
2) Use of non-programmable calculator is allowed.

		Marks	Bloom's Level	CO
Q.1	**Answer the following (Any Two)**–			
a)	With neat labeled diagram explain-.		L2	CO1
	i) Arc discharge Method	8		
	ii) Laser ablation method			
b)	Explain HomogeneousNucleation. How growth of nuclei takes place? Explain growth of nuclei controlled by diffusion and surface process.	8	L3	CO1
c)	ExplainChemical Bath Deposition (CBD)and Successive Ionic Layer Adsorption and Reaction (SILAR) methods with neat labeled diagram.	8	L3	CO2
Q.2	**Answer the following (Any two)** –			
a)	With neat labeled diagram, explain colloidal and sol gel methods for the synthesis of nano-materials.	8	L2	CO2
b)	With neat labeled diagram explain photolithography process in detail.	8	L3	CO3
c)	What is epitaxy? Explain Molecular Beam Epitaxy (MBE) in detail.	8	L3	CO3
Q.3	**Answer the following (Any two)** –			
a)	Explain Chemical Vapor Deposition (CVD) method for the synthesis of Carbon Nano Tube (CNT). How CNT and graphene are used as nanomaterials?	9	L3	CO4
b)	Write a note on-		L2	CO4
	i) Colloidal synthesis of quantum dots	9		
	ii) Brust Method for the synthesis of gold nano particles			
c)	Write a note on-		L3	CO3
	i) Vapor Phase Epitaxy	9		

ii) Laser Epitaxy

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