## CRASH COURSE

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## Fifth Semester B.E. Degree Examination, May 2017 Nanophotonics

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

## PART - A

1	a. b. c.	Explain about properties of materials with respect to reflection, refraction, absortansmission of light.  Define interference and diffraction.  Write a note on optical filters.											
2	a. b.	Explain about dielectric mirrors and interference filters.  Discuss about micro cavity effects in photonic crystals.											
3	a. b. c.	Explain in detail about optical couplers. Explain about tunable photonic crystal filter. Discuss about the fabrication of photonic crystal structure.	(06 Marks) (08 Marks) (06 Marks)										
4	a. b.	Write a note on optical wave guide SPR coupling. Explain about grating SPR coupling.											
	$\underline{PART - B}$												
5	a. b. c.	Explain nanoscale optical interaction, axial, and lateral nanoscopic localization. Discuss about photons and electrons with their similarities and differences. Write in detail about quantum confinement effects.	(06 Marks) (06 Marks) (08 Marks)										
6	a. b.	Write a note on self-assembling method using size dependent resonance. Explain about adiabatic nanofabrication with neat diagram.	(10 Marks) (10 Marks)										
7	a.	Explain about optical excitation transfer and system fundamentals with neat diagram											
	b.	Discuss about hierarchy in nanophotonics and its system fundamentals.	(10 Marks)										
8	a. b.	Explain about resonant cavity quantum well lasers and light emitting diodes. Explain briefly about fundamentals of cavity QED.	(10 Marks) (10 Marks)										

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