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LESSON-PLAN

Class: M.sc (Physics)

Semester: 4th

sem

Subject: laser and application physics

Session: 2021-22

Lecture Number	Topic
Lect.1	UNIT -1 ST Laser introduction.
Lect.2	Laser characterstics.
Lect.3	Laser idea.
Lect.4	Laser properties – directionality and brightness
Lect.5	Laser properties- monochromacity andcoherence.
Lect.6	Component of laser.
Lect.7	Pumping schemes.
Lect.8	Population inversion.
Lect.9	Einstein coefficient.
Lect.10	Radiation trapping supperdiance.
Lect.11	Superfluorescence and super radiance.
Lect.12	Amplified spontaneous emission.
Lect.13	Non- radiative decay.
Lect.14	Assignment.
Lect.15	Doubt taken.
Lect.16	UNIT -2 ND pumping process.

Lect.17	Types of pumping
Lect.18	Electrical pumping.
Lect.19	Efficiency of optical pumping
Lect.20	Optical pumping.
Lect.21	Efficiency of optical pumping.
Lect.22	Passive optical resonator.
Lect.23	Rate equation –two level
Lect.24	Three level.
Lect.25	Four level.
Lect.26	Q – switching
Lect.27	Types of Q – switching.
Lect.28	Eelctro optical shutter.
Lect.29	Mechanical shutter.
Lect.30	Acousto –optics.
Lect.31	Mode locking.
Lect.32	Types of mode locking.
Lect.33	Assignment
Lect.34	Test
Lect.35	Unit-3rd principle and construction.

Lect.36	Ruby laser- principle, construction and working.
Lect.37	Ruby laser- energy level, advantage and disadvantage.
Lect.38	Nd –yag -laser principle, construction and working.
Lect.39	Nd- yag laser - energy level, advantage and disadvantage.
Lect.40	N2 laser- laser principle, construction and working.
Lect.41	N2 laser- energy level, advantage and disadvantage.
Lect.42	Dye laser- principle, construction and working.
Lect.43	Dye laser.-energy level, advantage and disadvantage.
Lect.44	Semiconductor laser - principle, construction and working.
Lect.45	Semiconductor laser- energy level, advantage and disadvantage.
Lect.46	Assignment
Lect.47	Doubt taken
Lect.48	Test
Lect.49	Presentation
Lect.50	Unit -4 th multiphoto electric effect.
Lect.51	Multi Photoelectric effect and normal photo electric effect.
Lect.52	Two – photon process
Lect.53	Three photon process
Lect.54	Multi photon process
Lect.55	Raman scattering
Lect.56	Stimulated raman effect.

Lect.57	Application of laser – physics, chemistry and biology.
Lect.58	Medicine ,material and army
Lect.60	Optical communication
Lect.61	Thermo nuclear fusion
Lect.62	Holography
Lect.63	Use in military.
Lect.64	Assignment
Lect.65	Test
Lect.66	Revision
Lect.67	Revision
Lect.68	Revision.
Lect.69	Revision.
Lect.70	Revision.