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: T.Y.B.Sc. (2020-21)	**SCHOOL OF SCIENCE**	**Department:Physics**
Course Code: PHS 315	**Course Title: Applied Optics**	**Semester : V**
Day : Tuesday Date: 22.12.2020	**End Semester Examination**	**Time:2 Hrs. Max Marks:50**

Instructions: 1) All Questions are compulsory.
2) Figures to the right indicate full marks.

		Marks	Bloom's Level	COs
Q.1	**Answer the following (any Two)**–			
a)	Draw the energy level diagram of Helium Neon laser. Explain the operation and working principle of He-Ne laser.	8	L3	1
b)	What do you mean by stimulated absorption, spontaneous emission and stimulated emission? Explain in brief.	8	L2	1
c)	How will you show the Fourier transforming property of a thin lens?	8	L4	1
Q.2	**Answer the following (any two) –**			
a)	Explain basic principle and working of holography. Discuss different types of the holograms with suitable example.	8	L2	2
b)	Describe construction of optical fiber with the help of diagram. Further describe different factors responsible for loss of signal propogating through optical fibre.	8	L3	2
c)	Discuss various types of the optical fibres. Elaborate the important characteristics of the step index fibre.	8	L3	2
Q.3	**Answer the following (any two) –**			
a)	What do you understand by holography? Explain applications of holography in microscopy and interferometry.	9	L2	2
b)	Can we obtain light amplification in the absence of stimulated emission? Explain.	9	L3	1

c)	Derive the relation between Einstein's coefficients.	9	L3	1

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