MANIPAL ACADEMY of HIGHER EDUCATION
(Deemed to be University under Section 3 of the UGC Act, 1956)

Reg. No.										

DEPARTMENT OF SCIENCES, IV SEMESTER M.Sc (Physics)
END SEMESTER EXAMINATIONS, JULY 2020

SUBJECT [CODE PHY 5011]
(REVISED CREDIT SYSTEM-2017)

Time: 2 Hours Date:10-07-2020 MAX. MARKS: 25

Note: (i) Answer **ALL** questions

(ii) Draw diagrams, and write equations wherever necessary

1. a) Describe a method of obtaining phase-conjugation? What are its applications? (5)

2. a) Explain how self-phase modulation affects the propagation of light? Discuss the underlying physical phenomena. Expalin with an example. (3)

b) Discuss the advantages of electrooptic effect in transverse mode over longitudinal mode (for KDP). Justify using examples (2)

3. Explain the working principle of an optical parametric amplifier. Obtain the typical values of total bandwidth and the width of each band (5)

4. a) While mentioning the vaious optical senors/detectors used in fiber optics communication, explain the working principle of p-i-n photodiode. In each case mention their detection ranges and response time. (3)

b) Discuss the types of errors in an optical receiver system. (2)

5. a) Explain the working principle of streak camera as a detector of femtosecond pulses. (3)

b) Explain briely the method of generation of sub-picosecond electrical pulses. (2)