

V.P. AND R.P.T.P. SCIENCE COLLEGE, V.V.NAGAR

B.Sc.INSTRUMENTATION (V)

SEM-IV, MARCH-2019 EXAMINATION

SUB. CODE:-US04CINV02

SUB: OSCILLATOR AND OPTICAL DEVICE

DATE:-02/03/2019

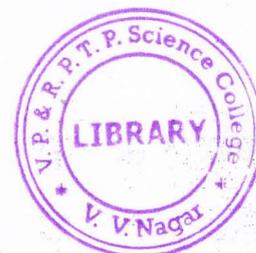
TIME:-03:00 PM to 05:00 PM

MARKS-50

Q-1 Choose correct answer

[8]

- In ___ oscillator RC circuit gives total 180 degree Phase shift
(A) phase shift (C) colpitt's
(B) Hartley (D) None of above
- In L-C oscillator frequency can be varies by changing value of ___
(A) Inductor (C) Capacitor
(B) Inductor and capacitor both (D) None of above
- Normally in LASER ___ and in LED ___ emission occurs.
(A) Stimulation, spontaneous (C) spontaneous, stimulation
(B) spontaneous, absorption (D) None of above
- In ordinary Photograph represent ___ dimension and in holography ___ dimension recording.
(A) Two, Three (C) Three, Two
(B) One, Two (D) None of above
- In fiberoptics light propagate through total internal ____
(A) Refraction (C) diffractions
(B) Reflection (D) None of above
- ___ is passing and carrying data in optical fiber,
(A) Current (C) Sound
(B) Light (D) None of above
- The term ___ is used to describe pulse bordering effect by fiber
(A) Modal Dispersion (C) Material Dispersion
(B) GM Interference (D) None of above
- Among the following which type of loss is observed in optical fiber cable.
(A) Material losses (C) Electric field losses
(B) Dimension losses (D) None of above



Q-2 Short question (Any five)

[10]

- What is piezo electric effect? Draw its equivalent circuit.
- State both Barkhusen's criteria and explain in short.
- Enlist difference between LED and LASER.
- Explain in short spontaneous emission and stimulated emission with figure.
- State principal of fiber optics.
- State disadvantages of fiber optics.
- Explain single mode fiber cable.
- Explain Absorption loss.

Q.3(A) Draw and explain Wein bridge oscillators

[4]

Q.3(B) Draw and Explain Colpitt's Oscillators.

[4]

OR

Q.3 Draw necessary diagram of 555 IC & explain it.

[8]

Q.4 List type of LED and explain surface emitting LED in detail with schematic diagram

[8]

OR

Q.4 Explain one of the LASERS in detail and explain any one application of LASER in detail.

[8]

Q.5 What is photo detector? List different types of photo detectors and explain any one photo detector in detail. [8]

OR

Q.5 List different type of fiber optics; explain construction of fiber optics in details. [8]

Q.6(A) Draw block diagram of fiber optics communication system and explain it. [5]

Q.6(B) Briefly explain communication system. [3]

OR

Q.6 What do you mean by total internal reflection? How it is used in fiber optics communication, with necessary figure determine an equation of critical angle (Q_c) and numerical aperture(N.A.) [8]

