VP & RPTP Science College

Vallabh Vidyanagar

BSc Examination [Semester: I] 2019

Subject: Physics   Course: US01CPHY21

Date 05-10-2019, Saturday   Time: 01.00 pm to 2.15 pm   **Total Marks: 25**

INSTRUCTIONS:

1   Attempt all questions.
2   The symbols have their usual meaning.
3   Figures to the right indicate full marks.

Q-1   Answer the following MCQ's with correct option. (1 Mark each)   05

(1)   _____ is the nearly perfect plastic material.

   (a) Silver   (b) Quartz fibre

   (c) Silicon   (d) Putty

(2)   The sound waves having frequency between 20 Hz to 20 KHz are called _____ waves.

   (a) Audible   (b) Infrasonic

   (c) Ultrasonic   (d) Supersonic

(3)   If we increase the length of simple pendulum, its time period will _____.

   (a) Decrease   (b) Becomes infinite

   (c) Increase   (d) Not changed

(4)   A point in a network where two or more circuit elements are joined together is called as

   _____.

   (a) Junction   (b) node

   (c) Branch   (c) Tree

(5)   The Jamin's refractometer is based on principle of division of _____ of a light beam.

   (a) wavelength   (b) frequency

   (c) amplitude   (d) Phase

Q-2 Define linear strain. Prove that the work done per unit volume in stretching the wire is   05
equal to $\frac{1}{2}$ (stress $\times$ strain).

OR

Q-2 Describe statical method to determine modulus of rigidity of a metal rod.   05

Q-3 Define ultrasonic. Enlist any four applications of ultrasonic.   05

OR

Q-3 Draw diagram of bar pendulum and explain how to determine 'g' using bar pendulum.   05

Q-4 With proper example explain mesh current analysis method for two mesh network.   05

OR

Q-4 What is Schering bridge? Explain its construction and working.   05

Q-5 Explain principle, construction and working of Michelson interferometer. State conditions   05
for circular and straight line fringes.

OR

Q-5 Define resolving power of a telescope and derive expression for it.   05