

**BACHELOR OF VOCATION****Mechatronics****Subject: Applied Physics****Subject Code: PHY-601****Semester: Third****January 2021****Theory (External): 35 Marks****Time: 03 Hours****Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

**Roll Number**

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**SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)**

**(10x1=10 Marks)**

- A. Explain what are SI system and CGS system of units?
- B. What are Self Locking machines?
- C. Define Viscosity and Buoyancy.
- D. What are Simple and Compound machines?
- E. Define Load and Velocity Ratio.
- F. Explain Photoconductivity.
- G. Explain what Thermometry is.
- H. State Pascal's Law.
- I. Define and explain what Numerical Aperture is?
- J. Give two applications of Optical fibres and explain usage briefly?

**SECTION -B (ESSAY TYPE QUESTIONS)**  
**(5x5=25 Marks)**

1. Explain what is Resistance thermometry? Explain what is the working principle of both Resistance thermometer and thermoelectric thermometer?
2. Explain Hooke's law. Give the definition and types of Stress and Strain.
3. Give the mechanical advantage and efficiency of a machine and their relationship.
4. Explain Helium-Neon laser in detail. Give the characteristics and applications of lasers.
5. Explain how can you find the value of Planck's constant by using photo electric cell?
6. Explain the working principle and application of simple screw jack and worm & worm wheel.
7. Discuss about laminar and turbulent flow.
8. How can you classify optical fiber based on modes and refractive index profile?

**==END OF PAPER==**