

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
B.Sc. Winter 2018-19 Examination

Semester: 1
Subject Code: 11107110
Subject Name: Physics

Date: 11/12/2018
Time: 10.30 am to 1.00 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Essay type (08)**
 (a) Write applications of LASER
 (b) Explain any one method for production of ultrasonic wave.
- Q.1. B) Answer the following questions (Any two)**
- (a) Short note (04)
 1. Write all Newton's law of motion.
 2. Explain reverberation and its importance.
- (b) Derive Bernoulli's equation. (04)
 (c) Derive the formula for Angle of acceptance with diagram. (04)
- Q.2. A) Answer the following questions.**
- (a) Short note (04)
 1. Explain half life.
 2. Draw the symbol and truth table of NAND and NOR gates.
- (b) Explain types of optical fiber. (04)
- Q.2. B) Answer the following questions (Any two)**
- (a) Short note (03)
 1. Write down the properties of LASER.
 2. Write down the frequency range of audible sound.
 3. Draw only the construction of half-wave rectifier.
- (b) Write down the applications of Radio Isotopes. (03)
 (c) Derive the path difference formula for fringes in wedge shaped films. (03)
- Q.3. A) Essay type (08)**
 (a) Explain spectrophotometer
 (b) Explain any four factors affecting acoustic of building.
- Q.3. B) Answer the following questions (Any two)**
- (a) Short note (04)
 1. Explain LDR.
 2. Write the poiseuille's equation.
- (b) Derive the equation of continuity. (04)
 (c) Explain nuclear composition. (04)
- Q.4. A) Answer the following questions.**
- (a) Short note (04)
 1. Define npn transistor.
 2. If the intensity of a source of sound is increased 10 times its value, by how many decibel does the intensity level increase?
- (b) Explain flip flops. (04)
- Q.4. B) Answer the following questions (Any two)**
- (a) Short note (03)
 1. Write sabine's formula.
 2. Write full-form of laser.
 3. Define pseudo force.
- (b) Explain gamma decay. (03)
 (c) In piezoelectric oscillator, thickness of plate is 6mm, young's modulus of plate is $7 \times 10^{10} \text{ N/m}^2$ & density is 3000 kg/m^3 . Find the natural frequency of vibration of plate. If the circuit contains inductor of 1.5Henry then find the value of capacitance required. (03)