Roll No: Enrolment No:

C U SHAH COLLEGE OF ENGINEERING & TECHNOLOGY WADHWAN

B. E. All semester- II Mid Semester Examination March-2009

SUBJECT : Physics

Date:24/03/2009 Time: 3.00p.m TO 4.30 p.m Max.Marks:40

Instructions:

1) Attempt all Questions.
2) Make suitable assumptions wherever necessary.
3) Figure to the right indicates full marks.

Que.- 1 **(a)** **Answer the following in details.**

(1) Write the factors affecting acoustic of buildings & explain any three of them. **[3]**

(2) Define piezo-electric effect. **[2]**

(b) **Answer the following:**

I **Attempt any two:** **[6]**

(1) Write a short note on "classification of solids" on band theorem.

(2) Describe the detection method of ultrasonic waves (any two of them).

(3) Explain reverberation & reverberation time with appropriate graph.

(4) What are Millar indices, explain with proper example to how to determine Millar indices.

II **Attempt any two:** **[4]**

(1) Explain: Weber Fechner law.

(2) What are Ultrasonic, Infrasonic & Audible waves.

(3) Define: Bravias Lattices.

(4) Draw the V-I characteristic of P-N Junction diode In Forward & Reverse biased condition.

Que. -2 **(a)** **Answer the following in details.** **[5]**

(1) Define magnetrostriction effect and draw a neat diagram and explain the magnetrostriction oscillator for the productions of ultrasonic waves.

(b) **Answer the following (any two)** **[6]**

(1) The volume of room is 600 m^3 The wall area of the room is 220 m^2, the floor area is 120 m^2 and the ceiling area is 120 m^2 The average sound absorption coefficient,

a) For the wall is 0.03
b) For the ceiling is 0.8
c) For the floor is 0.06

Calculate the average sound absorption co-efficient and the reverberation time.

(2) An air-conditional unit operate at a sound intensity level of 70 dB. If it is operated in room with an existing sound intensity level of 75 dB. What will be the resultant intensity?

(3) Calculate the length of an iron rod which can be used to produce ultrasonic waves of 20 KHz. Density of iron = 7.23×10^3 Kg/ m^3,
Young modulus of iron = 11.6×10^3 N/ m^2.

(b) Answer the following (any two) **[4]**

(1) Give the definition of absorption coefficient.

(2) What are the ultrasonic, infrasonic & audible waves?

(3) Give the full-form of LED & LDR & draw the symbol.

Que.- 3 **(a) Answer the following** **[4]**

(1) Reverberation time is depend :
- a) Directly proportional to volume
- b) Inversely proportional to volume
- c) Equal to volume
- d) None of above

(2) Piezo-electric effect converts pressure energy into
- a) Electric energy
- b) Magnetic energy
- c) Thermal energy
- d) EM energy

(3) The smallest part of the crystal is
- a) Primitive
- b) Crystal
- c) Basis
- d) Unit cell

(4) Zener diode is used as a
- a) Voltage amplifier
- b) Voltage divider
- c) Voltage regulator
- d) None of the above

(b) Answer the following (any two) **[6]**

(1) Application of ultrasonic waves.

(2) Write down the sabine's formula for reverberation time. Explain terms involved in it with their units.

(3) Explain HCP, BCP types of packing of atoms in metals.

(4) Write a short note on solar-cell.

==========***ALL THE BEST***==========