SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc. END SEMESTER EXAMINATIONS APRIL-2022
SEMESTER - II
20UPHCT2003 - Acoustics and Thermodynamics

Total Duration : 3 Hrs. **Total Marks : 60**

Section A

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Define Loudness of sound. Distinguish loudness from intensity of sound.
2. List the applications of Ultrasonic waves science, industry and medicine.
3. Derive the expression of work done in adiabatic process.
4. Describe the working of Carnot cycle as a refrigerator.
5. What do you learn by applying first law of thermodynamics to isothermal and adiabatic processes?
6. State the differences between petrol engine and diesel engine.
7. Draw the temperature – entropy diagram and explain the physical significance of entropy.
8. Explain the production of ultrasonic waves using magnetostriction method

Section B

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. What are free, damped & forced vibrations. Derive the differential equation governing forced vibrations.
10. What is Piezo-electric effect? Explain how this principle is used in the production of ultrasonic waves.
11. Discuss the change of entropy in a reversible and irreversible process in detail with related theory.
12. Describe the working of a diesel engine and derive an expression for its efficiency.
13. Derive Maxwell's thermodynamical relations and explain the physical significance of the equations.

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