B.Sc. DEGREE EXAMINATION,APRIL 2019
I Year II Semester
Acoustics and Thermodynamics

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. What is the phase difference between velocity and acceleration of a particle executing simple harmonic motion?
2. Give one example for free oscillations.
3. Are the ultrasonic waves electromagnetic waves?
4. What type of material is used in the rod employed in magnetostriction method?
5. Write down the equation for work done during adiabatic process.
6. Define temperature.
7. What form of energy is obtained from heat engine?
8. Give examples for heat engine.
9. Write the SI unit of entropy.
10. What is the net change in entropy in all irreversible processes?
11. What is to be done to convert degree Celsius ($^\circ$C) into Kelvin (K)?
12. What are the parameters used to indicate equilibrium states of a system?

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. What is meant by damped oscillations? State Fourier theorem.
14. List out the properties of ultrasonic waves.
15. Obtain the expression for work done during isothermal process.
16. Write the principles of Carnot heat engine.
17. Show that the net change in entropy in reversible process is zero.
18. Write down the advantages and disadvantages of magnetostriction generator.
19. A Carnot heat engine receives 500 kJ of heat per cycle from a high-temperature source at 652°C and rejects heat to a low-temperature sink at 30°C. Calculate the thermal efficiency of this Carnot engine.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Obtain the general expression for forced oscillation.
21. Explain the construction and working of piezoelectric generator with neat diagram.
22. Define thermal equilibrium. State zeroth and first law of thermodynamics. Derive the work done in an adiabatic process?
23. Describe the working of diesel engine with necessary diagrams.
24. Define reversible process. Derive the Maxwell's thermodynamic relations.

B.Sc. DEGREE EXAMINATION,APRIL 2019
I Year II Semester
Acoustics and Thermodynamics

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. What is the phase difference between velocity and acceleration of a particle executing simple harmonic motion?
2. Give one example for free oscillations.
3. Are the ultrasonic waves electromagnetic waves?
4. What type of material is used in the rod employed in magnetostriction method?
5. Write down the equation for work done during adiabatic process.
6. Define temperature.
7. What form of energy is obtained from heat engine?
8. Give examples for heat engine.
9. Write the SI unit of entropy.
10. What is the net change in entropy in all irreversible processes?
11. What is to be done to convert degree Celsius ($^\circ$C) into Kelvin (K)?
12. What are the parameters used to indicate equilibrium states of a system?

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. What is meant by damped oscillations? State Fourier theorem.
14. List out the properties of ultrasonic waves.
15. Obtain the expression for work done during isothermal process.
16. Write the principles of Carnot heat engine.
17. Show that the net change in entropy in reversible process is zero.
18. Write down the advantages and disadvantages of magnetostriction generator.
19. A Carnot heat engine receives 500 kJ of heat per cycle from a high-temperature source at 652°C and rejects heat to a low-temperature sink at 30°C. Calculate the thermal efficiency of this Carnot engine.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Obtain the general expression for forced oscillation.
21. Explain the construction and working of piezoelectric generator with neat diagram.
22. Define thermal equilibrium. State zeroth and first law of thermodynamics. Derive the work done in an adiabatic process?
23. Describe the working of diesel engine with necessary diagrams.
24. Define reversible process. Derive the Maxwell's thermodynamic relations.