SUB.CODE: 18UPH4C7

REG.NO:

DHANALAKSHMI SRINIVASAN COLLEGE OF ARTS & SCIENCE FOR WOMEN (AUTONOMOUS)

(For Candidates admitted from 2019 - 2020 onwards)

UG DEGREE EXAMINATIONS APRIL - 2021

B.Sc., - PHYSICS

THERMAL PHYSICS

Time: 3 Hrs **Max.Marks: 75**

PART - A

CHOOSE THE CORRECT ANSWER **(10X1=10)**

1. Under Steady State the Temperature of the body _____ with time.
   a) Increases
   b) Decreases
   c) Does not change with time and same at all points
   d) Does not change with time and different at all points.
2. Thermal Conduction in metals taken place by___.
   a)free electrons b) bound electrons
   c)vibration of molecules d) none of the above.
3. For a perfect Black body the absorptive power is ___.
   a) ∞ b)1 c) 0.5 d)0
4. Electromagnetic radiation is emitted by all bodies at___.
   a) all temperature b) zero temperature c) at 100° C d) unit temperature
5. The Inversion temperature of helium is__K.
   a)135 b)233 c) 195 d) 35
6. Using Adiabatic demagnetisation the minimum temperature produced is __K.
   a)10^{-3} b) 1 c)10^{-4} d) 10^{-5}
7. The Physical quantity that relates with first Law of Thermodynamics is ___
   a)temperature b) Pressure c) number of moles d) energy
8. The efficiency of Otto's engine is ___%.
   a)58.47 b) 38.67 c)45.32 d)72.67
9. In a reversible process entropy ___.
   a) increases b) decreases c)both a,b d)unchanged
10. Entropy remains constant in ___process.
    a) isothermal b) adiabatic c) isobaric d) isolated

PART - B

ANSWER ALL THE QUESTIONS **(5X7=35)**

11. a) What is Conduction? Define the coefficient of Thermal Conductivity.

(OR)

b) Explain the Thermal Conductivity of a bad conductor by Lee's Disc method.

12. a) State and explain Stefa n-Boltzmann Law.

(OR)

b) Explain the distribution of energy in a black body spectrum and give its results.

13. a) Explain the Porous plug experiment.

(OR)

b) Give the differences between Type-I & Type-II Superconductors.

14. a) Explain the working of Otto Engine.

(OR)

b) State First Law of Thermodynamics. Give its significance and its limitations.

15. a) Draw T-S diagram and explain.

(OR)

b) Calculate the change of Entropy in an Ir-reversible process.

PART - C

ANSWER ANY THREE QUESTIONS **(3X10=30)**

16. How will you determine the Thermal conductivity of a good conductor by Forbe's method?
17. Explain the determination of Stefan's constant by Laboratory method.
18. Explain the Liquefaction of Helium. Give the properties of Helium I&II.
19. Explain the working of Diesel engine and derive an expression for efficiency.
20. Outline the concept of Entropy in detail. Explain the change of Entropy.