13UPHCT1002 - UPH/CT/1002

B.SC. DEGREE EXAMINATION, APRIL 2018
I YEAR - I SEMESTER
Major Paper II-THERMAL PHYSICS

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

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

Answer any **TEN** questions

1. Pyrometer is an instrument known as ————————-
2. What is the accuracy of platinum resistance thermometer?
3. According to Dulong and petits law, the average energy of an atom of a solid at temperature T is ————————
4. What is calorie?
5. Mayers relation can give as (a) $C_p - C_v = R$ $(b) C_p + C_v = R$ $(c) C_p \times C_v = R$ $(d) C_p - C_T = R$
6. Write the minimum temperature produced by adiabatic demagnetisation.
7. Find the coefficient of performance of a refrigerator working between ice point and room temperature 30°C.
8. ————— is the last gas to be liquefied.
9. Thermal conductivity of bad conductor is measured by ———- method.
10. Thermal conduction in metals takes place by (a) free electrons (b) bound electrons (c) vibration of molecules (d) none of the above
11. What is a perfectly black body?
12. Rayleigh Jeans law of radiation (a) applies to smaller wavelength (b) applies to all wave length (c) applies to longer wavelength (d) does not apply to any wavelength

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

Answer any **FIVE** questions

13. Mention the applications of Thermistor
14. Calculate the specific heat capacity of a liquid by Callender and Barnes method.

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15. Explain C_v by Jolys method.
16. Describe Lindes method to liquify air.
17. Mention the practical uses and applications of low temperatures.
18. Define thermal conductivity and thermal diffusivity.
19. State and prove Stefans law.

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

Answer any **THREE** questions

20. Describe a platinum resistance thermometer.
21. Describe Regnaults Method of finding specific heat capacity of a gas at constant pressure.
22. Describe the necessary theory of the method of production of low temperature by adiabatic demagnetisation of a paramagnetic salt.
23. Describe an experiment to determine thermal conductivity of a bad conductor by Lees Disc method.
24. Derive an expression for the Plancks radiation law.