

Question for Internal exam

Modimate

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B.Sc. phys (Hon) (2019-2022)

Sem - 3

Core paper (5)

Answer any two of the following

2X5 = (10)

- ① Deduce Maxwell's velocity distribution law of velocities.
- ② Explain the basic assumptions of kinetic theory of gases.
- ③ What is 'Mean free path'. How mean free path is determined?
- ④ Deduce Vanderwaal's equation of state.

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2019-2020

Physics (Itan) Core paper (6)

Answer any two questions

- ① What is a Carnot's cycle. Describe that how the work done in each operation on a pressure-volume diagram.
- ② Show that change of entropy in a reversible cycle is zero but for an irreversible cycle there is an increase in the entropy of the system.
- ③ Derive four Maxwell's thermodynamic relations.
- ④ State and explain First law of thermodynamics.

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Sem III physics (Hons) Core paper ~~7~~ (7)

Answer any two questions

2x5=10

- (1) Discuss the principle and working of a zener diode how it can be used as a voltage stabilizer.
- (2) Describe with circuit diagram the working of a Half wave rectifier & Full wave rectifier.
- (3) Describe with neat circuit diagram the working of a $n-p-n$ transistor.
- (4) What do you mean by p or n type of semiconductors. Discuss about the mechanism of forward & reverse biasing.

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Answer any one question

- ① Determine the thermal conductivity of Copper using Seale's method.
- ② Write the theory of determining the thermal conductivity of rubber or Copper and determine it by Lee disk method.
- ③ Verify the truth tables of OR, AND, NOT, NOR, NAND Gates.