2016

PHYSICS

PAPER : PHY 206

EXPERIMENTAL TECHNIQUES IN MATERIAL SCIENCE

Full Mark : 40

Time : $1^1/_2$Hrs

Figures in the right hand margin indicate full marks for the question

SECTION - A

Answer All 5X2=10

1. Explain the term vacuum. Why vacuum technology is important?
2. What are the basic principles of pumping? Mention the basic parameters that a pump should have.
3. Write the difference between cold cathode ionization and hot cathode ionization gauge.
4. Write the advantage and disadvantages of Mcleod vacuum gauge.
5. What is refrigeration? How does it differ from cooling?

SECTION - B

Answer Any Six 5X6=30

6. With neat diagram, explain the working principle of Rotary pump. 5
7. Explain the working principle of diffusion pump with the help of diagram. Explain the back streaming of diffusion pump. 4+1
8. Discuss the different methods of producing low temperatures. 5
9. What do you mean by thermal conductivity of gas? Explain the working principle of thermocouple gauge. 2+3
10. Explain the working principle of penning gauge. 5.
11. Explain the working principle of hot cathode ionization gauge. 5
12. What is getter ion pump? Explain the working principle of sorption pump. 1+4

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