

Unit 7 - Week 5

Course outline

How does an NPTEL online course work?

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Lecture 22 : Experiment of Quincke's Tube Method

Lecture 23 : Susceptibility of paramagnetic substance by Gouy's method

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Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-04, 23:59 IST.

1) The degree of magnetization of a material in response to an applied magnetic field is called 1 point

- (a) Magnetic permeability
- (b) Magnetic induction
- (c) Magnetic susceptibility
- (d) Intensity of magnetization

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

2) Which among the following is an experimental method to determine the susceptibility of liquids? 1 point

- (a) Gouy's method
- (b) Quincke's tube method
- (c) Millikan's oil drop experiment
- (d) All of above options are wrong

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

3) $MnSO_4$ dissolved in water is an example for 1 point

- (a) Paramagnetic solution
- (b) Diamagnetic solution
- (c) Ferromagnetic solution
- (d) Nonmagnetic solution

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

4) Which among the following statement is correct regarding magnetic susceptibility? 1 point

- (a) It depends on the external magnetic field
- (b) It is a dimension less quantity
- (c) It depends upon the volume of the material
- (d) All of above are true

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

5) The susceptibility of a paramagnetic substance is: 1 point

- (a) Positive and high
- (b) Negative and high
- (c) Positive and low
- (d) Negative and low

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

6) Which of the following is a property of all elements? 1 point

- (a) paramagnetic
- (b) diamagnetic
- (c) ferromagnetic
- (d) All of the above

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

7) The following data is obtained in the Gouy's method experiment. 1 point

Area of sample = 0.244 cm^2 , applied magnetic field = 12500 gauss, change in mass due to field (Δm) = 35.25 mg. Calculate the volume susceptibility of the material. [take permeability of free space = 1 (cgs)]

- (a) 2.5×10^{-6}
- (b) 1.8×10^{-6}
- (c) 0.12×10^{-6}
- (d) 0.24×10^{-6}

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

8) For Mn^{2+} ion the number of electrons in 3d shell is 5. Find the magneton number (μ) 1 point

- (a) 2.0
- (b) 2.53
- (c) 3.45
- (d) 5.92

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(d)

9) In a Quincke's tube experiment, following data are obtained. 1 point

Applied magnetic field = 4500 Gauss

Rise of liquid column = 2.8 mm

Density of paramagnetic solution = 1.45 g/cm^3

Calculate the volume susceptibility of the substance in CGS system. [Neglect the susceptibility and density of air]

- (a) 27.5×10^{-5}
- (b) 39.3×10^{-6}
- (c) 12.5×10^{-6}
- (d) 7.25×10^{-5}

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

10) The paramagnetic susceptibility varies 1 point

- (a) Linearly with Celsius temperature
- (b) Linearly with absolute temperature
- (c) Inversely with Celsius temperature
- (d) Inversely with absolute temperature

- (a)
 (b)
 (c)
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(d)