

Unit 6 - Week 4

Course outline

How does an NPTEL online course work?

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Week 4

● Lecture 16 : Hall Effect as a Function of Temperature

○ Lecture 17 : To Study the Variation of Resistivity of Metal and Semiconductor at Low Temperature Region

● Lecture 18 : To Study the Variation of Resistivity of Metal and Semiconductor at Low Temperature Region (Contd.)

● Lecture 19 : Measurement of Magnetisation of Ferromagnetic Material

● Lecture 20 : Measurement of Magnetisation of Ferromagnetic Material (Contd.)

○ Quiz : Assignment 4

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Assignment 4

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 resistivity of a semiconductor _____ conductors and insulators 1 point

- (a) More than that of
(b) Lies between that of
(c) Less than that of
(d) None of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

2) A semiconductor is formed by _____ bonds 1 point

- (a) Covalent
(b) Electrovalent
(c) Ionic
(d) None of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

3) A semiconductor has _____ temperature coefficient of resistance. 1 point

- (a) Zero
(b) Positive
(c) Negative
(d) None of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

4) Low resistance are provided with four terminals 1 point

- (a) To facilitate the connections of current and potential circuits
(b) In order that the resistance value becomes definite irrespective of the nature of contacts of the current terminals
(c) To eliminate the effect of thermoelectric e.m.fs
(d) To eliminate the effect of leads

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

5) One very commonly used instrument for measurements on magnetic properties of solid and liquid materials is the 1 point

- (a) Polarimeter
(b) Gauss meter
(c) Lux meter
(d) Vibrating sample magnetometer

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(d)

6) In case of VSM the reference coils are used to create a reference signal such that noise generated from the signal can be filtered using a 1 point

- (a) Audio amplifier
(b) lock-in amplifier
(c) Voltage amplifier
(d) Current amplifier

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

7) The Quincke's method is used to determine the 1 point

- (a) Magnetic susceptibility of a paramagnetic or diamagnetic aqueous solution or liquid
(b) Magnetic moment of paramagnetic or diamagnetic substance
(c) Magnetization of paramagnetic or diamagnetic substance
(d) Magnetic field of electromagnet

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

8) In the Quincke's method the name of the device which determines the relationship between the current and applied magnetic field is 1 point

- (a) Lux meter
(b) Gauss meter
(c) Magnetometer
(d) Voltammeter

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

9) The Gouy's method is used to determine the 1 point

- (a) Magnetic susceptibility of solid sample
(b) Magnetic moment of solid sample
(c) Magnetization of solid sample
(d) Magnetic field of electromagnet

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

10) In Quincke's experiment Nickel chloride (NiCl₂) solution is used as a liquid in the U-tube and one surface of the liquid column is in a uniform magnetic field of 1 Wb/m². Find out the maximum height difference 'h' between the liquid surfaces in the two arms of the U-tube. Given that $\chi_{sol} = 9.416 \times 10^{-5}$, volume susceptibility of air $\chi_{air} = 0.4 \times 10^{-6}$ and magnetic permeability of air $\mu_0 = 4\pi \times 10^{-7} \frac{N}{A^2}$. Neglect the density of air and magnetic field at the other surface of the liquid column away from the magnet. 1 point

- (a) 1 mm
(b) 3 mm
(c) 5 mm
(d) 7 mm

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)