

M.Sc. SEMESTER-3 (NEW COURSE)

July-sep-2021

SUB: PHYSICS

MSPHY-302CC

કુલ સમય :— ૬૦ મીનીટ
કુલ પ્રશ્નો : ૫૦
વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૩૫
નોંધ : વિદ્યાર્થીએ માત્ર ૩૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૩૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

- What is the phase equilibrium ratio?
 - Ratio of heat of species in two phases at equilibrium
 - Ratio of temperature of species in two phases at equilibrium
 - Ratio of mole fractions of species in two phases at equilibrium
 - Ratio of equilibrium concentration of species in two phases at equilibrium.
- For a liquid-liquid case, what is phase equilibrium ratio?
 - Ratio of mole fractions of species in two phases at equilibrium
 - Ratio of distribution or partition coefficient
 - Ratio of equilibrium constant
 - Ratio of heat of supply
- The degree of freedom at triple point in unary diagram for water _____.
 - 0
 - 1
 - 2
 - 3
- Following is wrong about a phase diagram.
 - It gives information on transformation rates.
 - Relative amount of different phases can be found under given equilibrium conditions.
 - It indicates the temperature at which different phases start to melt.
 - Solid solubility limits are depicted by it.
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- How is the distribution among two or more phases at equilibrium determined by?
 - Application of entropy
 - Application of Newton's laws of motion
 - Application of Gibbs free energy
 - Application of force
- At equilibrium the total Gibb's free energy for all phases is
 - Minimum
 - Maximum
 - Infinity
 - Zero
- The chemical potential of a species is:
 - Different in all phases at chemical equilibrium
 - Same in all phases at chemical equilibrium
 - Different in all phases at physical equilibrium
 - Same In all phases at equilibrium
- The formula for partial fugacity is:
 - $F_i = C \exp(\mu_i / RT)$
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 - $F_i = C(\mu_i / RT)$
- Overall transformation rate changes with temperature as follows:
 - Monotonically decreases with temperature
 - First increases, then decreases
 - Initially it is slow, and then picks-up
 - Monotonically increases with temperature
- Phases that exist on left side of an invariant reaction line are called
 - Pro-phase
 - Hypo-phase
 - Hyper-phase
 - None
- Not a basic step of precipitation strengthening
 - Solutionizing
 - Mixing and compacting
 - Quenching
 - Aging
- The difference between fermions and bosons is that bosons do not obey _____.
 - Aufbau principle
 - Pauli's Exclusion Principle
 - Hund's Rule of Maximum Multiplicity
 - Heisenberg's Uncertainty Principle
- The wave function of fermions is not _____.
 - Continuous
 - Single Valued
 - Symmetric
 - Differentiable
- The boundary line between (liquid+solid) and (solid) regions must be part of _____.
 - Solvus
 - Solidus
 - Liquidus
 - Tie-line
- Relative amounts of phases in a region can be deduced using
 - Phase rule
 - Lever rule
 - Either
 - None
- Both nucleation and growth require change in free energy to be _____.
 - ve
 - zero
 - +ve
 - Any
- During homogeneous nucleation, critical size of a particle _____ with increase in under-cooling.
 - Increases
 - Decreases
 - Won't change
 - Not related
- Growth occurs by
 - Diffusion controlled individual movement of atoms
 - Diffusion-less collective movement of atoms
 - Both
 - None
- The expression for mean energy is given by _____.
 - $3/5NEF$
 - $2/5NEF$
 - $3/5EF$
 - $2/5EF$

21. The Fermi energy of a material is 3.45 eV. What is the zero-point energy of the material?
a) 1.02 eV b.2.07 eV c.3.45 eV d.4.16 Ev
22. The splitting of a nucleus into smaller nuclei is
a) Fusion b.Fission c.Half-life d.gamma -radiation
23. Fermi-Dirac statistics cannot be applied to _____
a) Electrons b.Photons c.Fermions d.Protons
24. For all the quantum states with energy greater than Fermi energy to be empty in a Fermi-Dirac system, the temperature should be _____
a) 273 K b.373 K c.0 K d.100 K
25. Which photon is more energetic: A red one or a violet one?
a) Both b.Red c.Violet d.Neither
26. Which Key Is Used For Help In Ms Excel?
a) F2 b.F1 c.F3 d.F4
27. You Can Convert Existing Excel Worksheet Data And Charts To HTML Document By Using The ?
a) Intranet Wizard b.Import Wizard c.Export Wizard d.Internet Assistant Wizard
28. Which Of The Following Is Not A Valid Zoom Percentage In Excel ?
a) 10 b.500 c.100 d.300
29. How Can We Set Page Border In Excel ?
a) From Edit Menu b.From Home c.You Can Not Set Page Border In Excel d. d.From Tools Menu
30. Which Types Of Charts Can Excel Produce ?
a) Line Graphs And Pie Charts Only b.Bar Charts, Line Graphs And Pie Charts
c.Bar Charts And Line Graphs Only d.Only Line Graphs
31. Which Of These Keys Are Used In Ms Excel To Copy Value From Above Cell?
a) Ctrl+ ; b.Ctrl+ " c.Ctrl+ : d.Ctrl+ D
32. VLOOKUP Function Used To ?
a) Finds Related Records b.Looks Up Text That Contain "v"
c.Check If Two Cells Are Identical d.None Of Above
33. 16. Hyperlinks Can Be In:
a) Text b.Pictures c.Drawing Objects d.All Of Above
34. 19. Which of the following key is Used for help In Ms Excel?
a) F1 b.F2 c.F3 d.None of the above
35. Worksheet data can be viewed in forms of
a) Graphs b.Charts c.Tables d.All of the above
36. Communication between a computer and a keyboard involves _____ transmission.
a) Automatic b.Half-duplex c.Full-duplex d.Simplex
37. The first Network was called _____
a) CNNET b.NSFNET c.ASAPNET d.ARPANET
38. To Create An Interactive Pivot Table For The Web, You Use A Microsoft Office Web Component Called ?
a) HTML b.Pivot Table Report c.Pivot Table List d.Pivot Table Field List
39. Which Key Is Used To "Goto" Tab In Ms Excel?
a) F9 b.F7 c.F6 d.F5
40. Which Of These Keys Are Used In Ms Excel To Insert Current Time In Workbook?
a) Ctrl+ : b.Ctrl+ " c.Ctrl+ ; d.Ctrl+T
41. Which Function Calculates Your Monthly Mortgage Payment ?
a) PMT b.PV c.NPER d.All Of Above
42. To Minimize Workbook In Ms Excel:
a) Ctrl+ F8 b.Ctrl+ F7 c.Ctrl+ F9 d.Ctrl+ F6
43. Merge Cells Option Can Be Applied From ?
a) Formatting Toolbar b.Format Cells Dialog Box Alignment Tab c.Both Of Above d.None Of Above
44. _____function in Excel tells how many numeric entries are there.
a) COUNT b.NUM c.SUM d.CHKNUM
45. Which one is not a function in ms excel?
a) SUM b.AVG c.MAX d.MIN
46. An excel file is generally called a
a) Sheet b.Workbook c.Worksheet d.Spreadsheets
47. Which of this is not a network edge device?
a) PC b.Smartphones c.Servers d.Switch
48. A _____ set of rules that governs data communication.
a) Protocols b. Standards c. RFCs d. Servers
49. Three or more devices share a link in _____ connection.
a) Unipoint b. Multipoint c. Point to point d. Simplex
50. Which of the following protocols is used in the internet?
a) HTTP b.DHCPs c.DNS d.DNS, HTTP and DNS