CHEMISTRY

BOOKS - MARVEL CHEMISTRY (HINGLISH)

SOLID STATE

Multiple Choice Questions

1. Then energy of solid substances is _____

  A. quite law

  B. higher than liqiud

  C. moderate

  D. very high

Answer: A

2. Constituent particles of a solid have

    A. random motion

    B. linear motion

    C. rotary moion

    D. vibratory motion

Answer: D

3. The constitutiuent particles of solid can only _____ abot their mean position .

A. rotate

B. oscillater

C. remain fixed

D. move

Answer: B

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4. Constituent particles of a solid have

A. atoms

B. ions

C. molecules

D. any one of them

Answer: D

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5. Amorphous solid are

A. do not melt

B. posses sharp melting point

C. metl instantly

D. melt gradually over a temperature range

Answer: D

6. Anistropic are _____

    A. crystalline substances

    B. colloidal substances

    C. amorphous substances

    D. tiny substances

Answer: B

7. A crystalline solid on being cut with a sharp knife gives

_____

    A. an irregular breakage

    B. a symmetrical breakage

    C. a clean cleage

    D. a uniform cleave

Answer: D

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8. CO_2 belongs to

    A. covalent crystal

B. molecular crystal

C. ionic crystal

D. metallic crystal

Answer: D

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9. The major binding force of diamond, silicon and quartz is

A. ionic bond

B. covalent bond

C. dipole-diple attraction

D. induced dipole-dipole attraction

Answer: D

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10. The major binding force of diamond, silicon and quartz is

A. ionic bond

B. covalent bond

C. dipole-diple attraction

D. induced dipole-dipole attraction

Answer: B

11. The nature of chemical bonding in graphite is

    A. ionic bond

    B. covalent bond

    C. hydrogen bond

    D. Lonadon force

Answer: B

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12. Molecular solids are generally

    A. good conductors of electricity

    B. quite hard

C. quite brittle

D. volatile

Answer: D

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13. London forces are present between _____

A. HCl molecules

B. NH_3 molecules

C. H_2O molecules

D. H_2 molecules

Answer: D

14. The force that holds kernels together in the crystal is

called _____

    A. ionic bond

    B. hydrogen bond

    C. covalent bond

    D. metallic bond

Answer: D

15. The smallest repeating pattern which when repeated in three dimensions results in the crystal of the substance is called

    A. cell

    B. unit cell

    C. unit lattice

    D. space lattice

Answer: B

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16. The simplest unit of three dimensional arrangement of lattice points which sets the pattern for whole lattice is

callled

A. lattice point

B. space point

C. space latice

D. unit lattice

Answer: C

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17. Select and write the most appropriate answer from the given alternatives for each sub-question:

The relation $a \neq b \neq c$ and $\alpha \neq \beta \neq \gamma$ represents which crystal system?

A. tricline

B. monoclinic

C. rhombic

D. cubic

Answer: A

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18. For a crystal system, $a = b = c, \alpha = \beta = \gamma \neq 90$, the system is

A. tetragonal

B. triclininc

C. rhombohedral

D. hexagonal

Answer: C

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19. The relation $a = b = c$ and $\alpha = \beta = \gamma = 90°$ belong to the _____crystal system

A. Cubic

B. Monoclinic

C. Tetragonal

D. Rhombohedral

Answer: A

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20. In the primitive cubic unit cell, the atoms are present at the:

    A. centre of the unit cell

    B. corners of the unit cell

    C. centre of each face of the unit cell

    D. corners of the unit cell and centreof the unit cell

Answer: B

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21. In a tetragonal crystal

A. $\alpha = \beta = 90°\gamma$ and $a = b = c$

B. $\alpha = \beta = \gamma = 90°$ and $a \neq b \neq c$

C. $\alpha = \beta = \gamma = 90°$ and $a = b \neq c$

D. $\alpha = \beta = 90°, \gamma = 120°$ and $a = b \neq c$

Answer: C

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22. The ability of a substance to exist in two or more crstaline forms knows as:

A. polymorphous

B. amorphous

C. isomorphous

D. mono-morphous

Answer: A

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23. Graphite is a

A. metallic cyrstal

B. covalent crystal

C. ionic crystal

D. moleclar cyrstal

Answer: B

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24. Diamond is a

A. metallic cyrstal

B. covalent cyrstal

C. ionic crystal

D. molecular cyrstal

Answer: B

25. The ratio of close packed atoms to octahderal holes in hexagonal close packing is

A. 1 : 1

B. $1:2$

C. $2:3$

D. $1:3$

Answer: A

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26. In the face centered per unit cell, the lattice points are present at the:

A. corners and face centres of the unit cell

B. corners of the unit cell

C. face centres of the unit cell

D. corners and centreof the unit cell

Answer: A

27. How is simple cubic unit cell formed ? Calculate the number of atoms in a simple unit cell.

A. 1

B. 2

C. 4

D. 8

Answer: A

28. Calculate the number of atoms in a face centred cubic unit cell.

A. 1

B. 2

C. 3

D. 4

Answer: D

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29. The unit cell present in ABCABC, closet packing of atoms is:

A. body centred cube

B. hexagonal

C. face centred cube

D. tetragonal

Answer: C

30. The unit cell present in ABCABC, closet packing of atoms is:

A. tetragonal

B. hexagonal

C. face centred cube

D. body cented cube

Answer: B

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31. The empty space in the hexogonal close packing is........%
while that in the body-centred cubic packing is ....%

A. 26%

B. 32%

C. 34%

D. 38%

Answer: A

32. How many nearest neighbours surrounded each particle in a face-centred cubic lattice?

    A. 12

    B. 8

    C. 6

    D. 4

Answer: A

33. The unit cell present in the cyrstal lattic of copper is

_____

    A. trigonal

    B. cube

    C. Tetragonal

    D. hexagonal

Answer: B

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34. The number of octahedral sites per sphere in fcc structure is

A. 2

B. 1

C. 4

D. 3

Answer: B

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35. The number of tetrhedral sites per sphere in ccp

structure is

A. 4

B. 3

C. 2

D. 1

Answer: C

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36. Percentage of packing fraction in cubic close packed structure and in body centered packed structure are respectively.

A. 0.42

B. 0.53

C. 0.68

D. 0.82

Answer: C

37. The number of octahedral sites per sphere in fcc structure is

A. 1

B. 2

C. 4

D. 8

Answer: C

38. Calculate the number of tetrahedral voids in the unit cell of a face-centred cubic lattice of similar atoms.

A. 4

B. 6

C. 8

D. 12

Answer: C

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39. Aluminiumn crystallise in _____ structure .

A. fcc

B. ccp

C. bcc

D. hcp

Answer: A

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40. The intermetallic compound $LiAg$ crystallizes in cubic lattice in which both lithium and silver have coordination number of 8. The crystal class is

A. simple cubic

B. boyd entred cubic

C. hexagonal close packed

D. face centred cubic

Answer: B

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41. The edge length of fcc unit cell is 610 pm. If the radius of the cation is 128 pm the radius of the anion is _____

A. 177 pm

B. 354 pm

C. 482 pm

D. 738 pm

Answer: A

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42. In a solid AB having the $NaCl$ structure, A atom occupies the corners of the cubic unit cell. If all the face-centred atoms along one of the axes are removed, then the resultant stoichiometry of the solid is

A. A_2B

B. AB_2

C. A_3B_4

D. A_4B_3
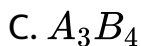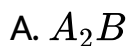
Answer: C

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43. Which of the following statements is correct in the rock-salt structure of ionic compounds?

A. Co-ordination number of cation is four whereas that of anion is six

B. Co-ordination number of cation is six whereas that of anion is four

C. Co-ordination number of cation and anion is four

D. Co-ordination number of cation and anion is six

Answer: D

44. The general formula of an ionic compound crystallizing in the rock-salt structure is
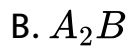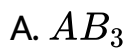
A. AB

B. AB_2

C. A_2B

D. AB_3

Answer: A

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45. The general formula of an ionic compound crystallizing in the centred cubic structure is _____
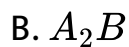
A. AB_3

B. A_2B

C. AB_2

D. AB

Answer: D

46. The general formula of an ionic compound crystallizing in zinc-blende structure is _____

A. AB

B. A_2B

C. AB_2

D. AB_3

47. If the anions (A) form hexagonal closest packing and cations (C) occupy only 2/3 octahedral voids in it. Then the general formula of the compound is
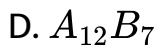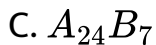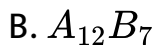
A. BA

B. BA_2

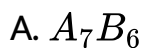C. B_2A_3

D. B_3A_2

Answer: C

48. In a cubic unit cell, seven of the eight corners are occupied by atoms A and centres of faces are occupied by atoms B. The general formula of the compound is:

A. A_7B_6

B. $A_{12}B_7$

C. $A_{24}B_7$

D. $A_{12}B_7$

Answer: D

49. A ionic compound is expected to have tetrahedral structure if r_c/r_a:

    A. in in the range of 0.414 to 0.732

    B. in in the range of 0.155 to 0.225

    C. in in the range of 0.025 to 0.414
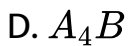
    D. is more than 0.732

Answer: C

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50. An ionic compound $A_x B_y$ occurs in fcc type crystal structure with B ion at the centre face and A ion occupying corners of the cube. Give the formula $A_x B_y$.

A. AB_3

B. AB_4

C. A_3B

D. A_4B
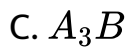
Answer: A

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51. In the closed packing of atoms A $(\text{radius}: r_a)$, the radius of atom B that can be fitted into tetrahedral void is:

A. $0.155r_a$

B. $0.255r_a$

C. $0.414r_a$

D. $0.732r_a$

52. The interionic distance for cesium chloride crystal will be

A. $\dfrac{2}{\sqrt{7}}a$

B. $\dfrac{\sqrt{3}}{2}a$

C. $\sqrt{3a}$

D. $\dfrac{2a}{\sqrt{3}}$

53. Sodium chloride , NaCl , usually crystallizes in a face - centered cubic lattice. How many ions are in contact with any single Na^+ ion ?

A. 1

B. 4

C. 6

D. 8

Answer: C

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54. In the primitie cubic unit cell of closed packed atoms, the radius of atom in terms of edge length (a) of unit cell is

A. $\dfrac{\sqrt{3}}{4}a$

B. $\dfrac{a}{2}$

C. $\dfrac{\sqrt{3}}{2}a$

D. $\dfrac{\sqrt{2}}{2}a$

Answer: B

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55. The packing fraction of the primitive cubic unit cell is

A. 0.283

B. 0.321

C. 0.523

D. 0.685

Answer: C

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56. In the face-centred cubic unit cell of cloest packed atom,s the radius of atoms of edge length (a) of the unit cell is

A. $\dfrac{a}{2}$

B. $\dfrac{a}{\sqrt{2}}$

C. $\dfrac{\sqrt{3}}{2}a$

D. $\dfrac{\sqrt{2}}{2}a$

Answer: C

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57. Which of the following expressions is correct in the case of a sodium chloride unit cell (edge length, a)?

    A. $r_c + r_a = 0$

    B. $r_c + r_a = \dfrac{a}{2}$

    C. $r_c + r_a = 2a$

    D. $r_c + r_a = \sqrt{2}a$

Answer: B

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58. Which of the following expression is correct in case of a CsCl unit cell (edge length, a)?

A. $r_c + r_a = a$

B. $r_c + r_a = \dfrac{a}{\sqrt{2}}$

C. $r_c + r_a = \dfrac{\sqrt{3}a}{2}$

D. $r_c + r_a = \dfrac{a}{2}$

Answer: C

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59. In an idaeal closet rock salt structure (edge length a) which of the following expression is correct?

A. $r_a = \sqrt{3}a$

B. $r_a = \dfrac{a}{\sqrt{2}}$

C. $r_a = \dfrac{a}{2\sqrt{2}}$

D. $r_a = \dfrac{a}{4}$

Answer: C

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60. The cubic unit cell of Al (molar mass 27 g mol^{-1}) has an edge length of 405 pm. Its density is $2.7 gcm^{-3}$. The cubic unit cell is :

    A. primitive

    B. face-centred

    C. body-centred

    D. end-centred

Answer: B

61. A substance has a face centred cubic crystal with a density 1.984 g cm^{-3} and edge length 630 pm. Calculate the molar mass of the substance

    A. $37.35 gmol^{-1}$

    B. $56.02 gmol^{-1}$

    C. $74.70 gmol^{-1}$

    D. $65.36 gmol^{-1}$

Answer: C

62. Ammonium chloride, crystalliazes in a body centered cubic latteice iwh edge length of unit cell equal to 387pm. If the size of Cl^- ion is 181pm, the size of NH_4^+ ion would be:

A. 116 pm

B. 154 pm

C. 174 pm

D. 206 pm

Answer: B

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63. The edge length of sodium chloride unit cell is 564 pm. If the size of Cl^- ion is 181 pm. The size of Na^+ ion will be

A. 101 pm

B. 167pm

C. 202 pm

D. 383 pm

Answer: A

64. The fraction of volume occupied by atoms in a body centered cubic unit cell is:

A. 0.32

B. 0.48

C. 0.68

D. 0.74

Answer: C

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65. The interionic distance for cesium chloride crystal will be

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66. How many unit cell are present in a cubic-shaped ideal crystal of $NaCl$ of mass $1.0g$?

A. 5.14×10^{21}

B. 1.28×10^{21}

C. 1.71×10^{21}

D. 2.57×10^{21}

Answer: D

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67. Which of the following hasno rotation of symmetry ?

A. Hexagonal

B. Orthorhomic

C. Cubic

D. Tricline

Answer: D

68. Which of the following fcc structure contain cations in alternate tetrahedral voids?

A. $NaCl$

B. ZnS

C. Na_2O

D. CaF_2

Answer: B

69. if the edge length of a NaH unit cell is 488 pm, what is the length of Na-H bond if it crystallises in the fcc structure ?

    A. $112 \pm$

    B. $244 \pm$

    C. $488 \pm$

    D. $976 \pm$

Answer: B

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70. The edge length of a cube is 400 pm .its body diagonal would be

A. 500 pm

B. 600 pm

C. 566 pm

D. 693 pm

Answer: D

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71. For which crystal anion-anion contact is valid ?

A. NaF

B. NaI

C. CsBr

D. KCl

Answer: B

72. Each rubidium halide crystallising in the NaCl-type lattice has a unit cell length 0.30Å greater than that for corresponding potassium salt $\left(r_{k+} = 1.33\text{Å}\right)$ of the same halogen. Hence, ionic radius of Rb^+ is

A. 1.03Å

B. 1.18Å

C. 1.48Å

D. 1.63Å

Answer: C

73. In diamond, each carbon atom is bonded to four other carbon atoms tetrahedrally. The number of carbon atoms per unit cell is

A. 4

B. 6

C. 8

D. 12

Answer: C

74. If the positions of Na^+ and Cl^- are interchanged in NaCl, having fcc arrangement of Cl^- ions then in the unit cell of NaCl

    A. Na^+ ins will decreass by 1 while Cl^- ions will increases by I

    B. Na^+ ins will increase by 1 while Cl^- ions will decrease by I

    C. Number of Na^+ and Cl^- ios will remain the same

    D. The crystal structure of NaCl will change

Answer: B
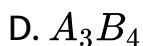
75. An example of a face centred cubic lattice is
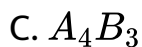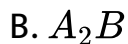
A. Zinc

B. Sodium

C. Copper

D. Cessium chloride

Answer: B

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76. In a solid AB having the $NaCl$ structure, A atom occupies the corners of the cubic unit cell. If all the face-centred atoms along one of the axes are removed, then the resultant stoichiometry of the solid is

A. AB_2

B. A_2B

C. A_4B_3

D. A_3B_4

Answer: D

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77. Which of the following statement is not correct ?

A. The fractionof the total volume unoccupied by the atom in a primitive cell is 0.48

B. Molecular solids are generally volatile

C. The number of carbon atoms is a unit cell of diamond is 4

D. The number of Bravais lattices in which a crystal can be categorized is 14.

Answer: C

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78. KCI crystallizes in the same type of lacttice as does $NaCl$. Given that

$$\frac{r_{Na^\oplus}}{r_{Cl^\ominus}} = 0.5 \text{ and } \frac{r_{Na^\oplus}}{r_{K^\oplus}} = 0.7$$

Calculate (a) the ratio of side of the unit cell for KCl to that for $NaCl$, and (b) the ratio of density of $NaCl$ to that KCl.

A. 1.123

B. 0.891

C. 1.414

D. 0.414

Answer: A

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79. A swubstance $A_x B_y$ crystallises in a face cubic centred cubic (fcc) lattice in which A occupy each corner of the cube and atoms B occapy the centers of each face of the ci=ube identical the correct composition of the substance $A_x B_y$

A. AB_3

B. A_4B_3

C. A_3B

D. Composition cannot be specified

Answer: A

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80. The Ca^{2+} and F^- ions arc located in CaF_2 crystal respectively at face centred cubic lattice points and in

A. tetrahedral voids

B. half of tetrahedral voids

C. octahedral voids

D. half of octahedral voids

Answer: A

81. An element (with atomic mass=250 g) crystallises in a simple cube. If the density of unit cell is 7.2 g cm^{-3} , what is the radius of the element ?

    A. $1.93 \times 10^{-6} cm$

    B. $1.93 \times 10^{-8} cm$

    C. $1.93 \times 10^{-8} \text{Å}$

    D. $1.93 \times 10^{-8} cm$

Answer: B

82. The fraction of total volume occupied by the atom present in a simple cubic is

A. $\dfrac{\pi}{4}$

B. $\dfrac{\pi}{6}$

C. $\dfrac{\pi}{3\sqrt{2}}$

D. $\dfrac{\pi}{4\sqrt{2}}$

Answer: B

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83. If $NaCl$ is doped with $10^{-4} mol\ \%$ of $SrCl_2$ the concentration of cation vacancies will be

$$\left(N_A = 6.02 \times 10^{23} mol^{-1}\right)$$

A. $6.02 \times 10^{-14} \mathrm{mol}^{-1}$

B. $6.02 \times 10^{-15} \mathrm{mol}^{-1}$

C. $6.02 \times 10^{-16} \mathrm{mol}^{-1}$

D. $6.02 \times 10^{-17} \mathrm{mol}^{-1}$

Answer: D

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84. Which of the following is NOT ferromagnetic ?

A. Nickel

B. Manganese

C. Cobalt

D. Iron

Answer: B

85. Two ions $A^{\oplus}$ and $B^{\ominus}$ have radii 88 and 200 pm, respectively. In the close-packed crystal of compound AB, predict coodination number of $A^{\oplus}$.

A. 3

B. 4

C. 6

D. 8

Answer: C

86. A compound formed by elements X and Y crystallises in a cubic structure in which the X atoms are at the corners of a cube and the Y atoms are at the face centres.The formula of the compound is

A. XY

B. XY_2

C. X_2Y_3

D. XY_3

Answer: D

87. The radius ratio of a compound is 0.193 , th structural arrangement of the compound is _____

   A. tetrahedral

   B. octahedral

   C. planar triangular

   D. body centred coubic

Answer: C

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88. The close packed cations in an AB type solid with NaCl structure have a radius of 75 pm, the minimum size of the anion fling the vois is

A. 181.2 pm

B. 102.5 pm

C. 98 pm

D. 75 pm

Answer: B

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89. Which is not correct statement fix ionic solids in which positive negative ions held by strong electrostatic attracctive forces ?

A. The radius ratio $\dfrac{r_+}{r_-}$ increases, coordination number increases

B. As thd differen cin size of ions increases, coordinates

number increases

C. When coordination number is eight, $\dfrac{r_+}{r_-}$ ratio lies

between 0.225 to 0.014

D. In ionic solid of the type AX (ZnS . Wurtizite), the

coordinates number of Zn^+ and S^{2-} respectively are

4 and 4

Answer: C

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90. Which of the following statement is wrong ?

A. The coordinates number of each type of ion in CsCl is 8

B. A metal that crstallizes in bee strucutre has a coordination number is 12

C. A unit cell of an ionic crystal shares some of its ions with outher unit cells

D. The length that crystallize in NaCl is 552 pm $\left(r_{NA^+} = 95\text{pm}, r_{Cl^-} = 181 = Pm\right)$

Answer: B

91. Three element A, B, C crystallize into a cubic solid lattice.Atoms A occupy the corners B atoms the cube centres and atom C the edge .The formula of the compound is

A. ABC

B. ABC_2

C. ABC_3

D. ABC_4

Answer: C

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92. Point out the correct statement for the set of characteristics of ZnS crystal.

A. Coordinates number $(4:4)$, ccp, Zn^{2+} ion in the alternate tetrhedral voids

B. Coordinates number $(6:6)$, hcp, Zn^{2+} ion in the alternate tetrhedral voids

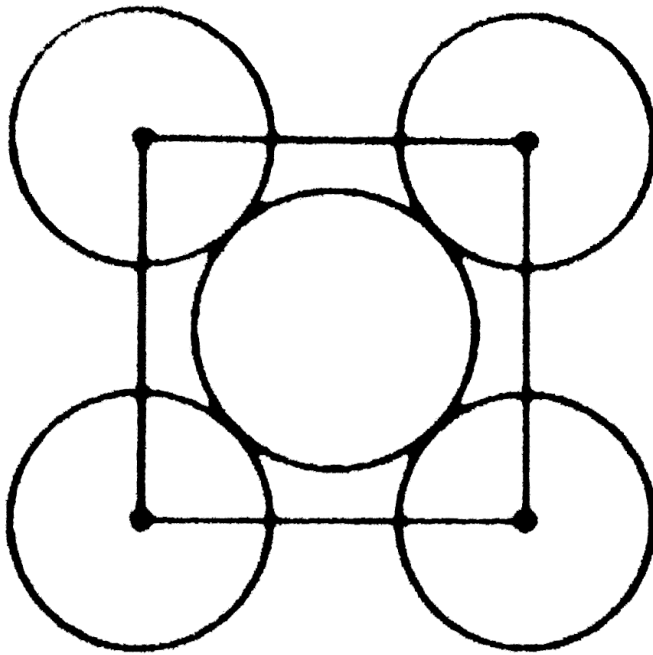C. Coordinates number $(6:4)$, hcp, Zn^{2+} ions in the octahedral voids voids

D. Coordinates number $(4:4)$, ccp, Zn^{2+} ions in the tetrhedral voids

Answer: A

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93. The packing efficiency of the two-dimensional sqare unit cell shown below is

A. 39.27 %

B. 68.02 %

C. 74.05 %

D. 78.54 %

Answer: D

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94. The edge length of a face centred cubic cell of an ionic substance is 508 pm .If the radius of the cation is 110 pm the radius of the anion is

A. 618 pm

B. 144 pm

C. 288 pm

D. 398 pm

Answer: B

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95. Percentage of free space in cubic close packed structure and in body centered packed structure are responsive:

    A. 32 % and 48 %

    B. 48 % and 26 %

    C. 30 % and 26 %

    D. 26 % and 32 %

Answer: D

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96. AB crystallizes in a body centred cubic lattice with edge length a equal to $387pm$ .The distance between two oppositely charged ions in the lattice is :

A. 330pm

B. 335 pm

C. 250 pm

D. 200 pm

Answer: B

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97. $CuSO_4 \cdot 5H_2O$ belongs to

A. triclinic system

B. cubic system

C. tetragonal system

D. hexagonal system

Answer: A

98. In sodium chloride crystal, the number of next nearst neighbours of each Na^+ ion is:

A. $8Cl^-$ ions

B. $8Na^+$ ions

C. $6Cl^-$ ions

D. $12Cl^-$ ions

Answer: C

99. In sodium chloride crystal, the number of next nearst neighbours of each Na^+ ion is:

A. $8Cl^-$ ions

B. $6Na^+$ ions

C. $12na^+$ ions

D. $24Cl^-$ ions

Answer: B

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100. If a is the edge length of unit cell of sodium chloride, the distance between the nearest Na^+ and Cl^- ions is

A. a

B. $\sqrt{2}a$

C. $\dfrac{a}{2}$

D. $\sqrt{3}a$

Answer: C

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101. If a is the edge length of unit cell of sodium chloride, the distance between the two nearest Na^+ ions is

A. a

B. $\sqrt{2}a$

C. $\sqrt{3}a$

D. $\dfrac{a}{\sqrt{2}}$

Answer: D

---

102. Due to Frenkel defect, the density of the ionic solids

    A. increases

    B. decreases

    C. remains same

    D. fluctuates

Answer: C

103. Which of the following statements for crystals having Frenkel defect is /are not correct?

A. Frenkel defect are observed where the difference in sizes of cation and anions is large

B. The density of cystal having Frenkel defect is lesser than that of a pure perfect crystal

C. In an ionic crystal having Frenkel defect may also contain Schottky defect

D. Pure alkali halides do not have Frenkel defect

Answer: B

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104. Which of the following exhibit both Frenkel & Schottky defect?

A. AgI

B. NaCl

C. AgCl

D. KCl

Answer: A

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105. Semiconductors are manufactured by addition of impurities of

A. s-block elements

B. actinoids

C. lanthanoids

D. p-block elements

Answer: D

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106. p type semi conductor is formed when trace amount of impurity is added to silicon. The number of valence electrons in the impurity atom must be

A. 1

B. 2

C. 3

D. 5

Answer: C

107. n type semiconductor is formed when trace amoutn of impurity is added to silicon. The numbe of elecrtons in the impurity atom must be

A. 5

B. 6

C. 2

D. 1

Answer: A

108. The variation in the peropery of ability to conduct electricityof substance can be explaind with the help of

    A. Bragg equation

    B. Faradys equation

    C. Band theory

    D. Plank's theory

Answer: C

109. Polar molecular solids

A. are good conductor of electricity

B. are poor conductor of electricity

C. do not conduct electericity

D. are semiconductor of electicity

Answer: C

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110. What are n-type semiconductors ?

A. have no charge

B. have extra negative charge

C. have extra positive charge

D. are neutral type of semicoductor

Answer: B

111. The propery of a substance due to presence of unparied electrons is called

    A. paramagnetism

    B. diamagnetism

    C. polymerisation

    D. polymorphosis

Answer: A

112. Which of the following is ferromagnetic substance ?

A. Water

B. NaCl

C. Benzene

D. CrO_2

Answer: D

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113. Which of the following is paramagnetic substance ?

A. Oxygen

B. Sodium chloride

C. Cabalt

D. Nickel

Answer: A

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114. Diamagnetism is exhibited byb

A. Cobalt

B. Zinc

C. Oxygen

D. Iron

Answer: B

115. Which ereferenc to Guoy's method which of the following statement is not correct ?

A. The dimagnetic substance weighs less in the magnetic field

B. The paramagnetic substance weighs more in the magnetic field

C. The paramagnetic substance weighs maximum in the magnetic field

D. The ferromagnetic substance weighs maximum in the magnetic field

Answer: C

116. Fushed silica eist in the form of _____

    A. crystalline solid

    B. liquid

    C. amorphous solid

    D. gel

Answer: C

117. The solid is said to be amorphous if

A. there is only a large order of its consituent particels

B. there is only a shosrt range order of its consitituent

   particels

C. there is a long range and a shortrange order of its

   constitutent paticles

D. there is along range repeated order of its constituent

   particles

Answer: B

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118. Which of the following is a molecular crystal?

   A. Dry ice

B. Diamond

C. Rock Salt

D. Quartz

Answer: A

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119. Amorphous solids are

A. true solids

B. supercooled liquids

C. supercolled solids

D. true liquids

Answer: B

120. KCl and SO_2 are _____

    A. ionic solid and polar molecular solid respectively

    B. ionic solid and non-polar molecular solid respectively

    C. ionic solid and covalent solid respectively

    D. Covalenet solid and non-polar molecular solid respectively

Answer: A

121. Prex glas is botained by fusing

A. SiO_2 and Na_2

B. SiO_2, B_2O and Al_2O_3

C. SiO_2 and $MgCO_3$ and $CaCO_3$

D. SiO_2MgO and CuO

Answer: B

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122. If refractive indedx is found to be same in all directions through a solid, then this propery is called _____

A. isomerism

B. metamerism

C. isotropy

D. anisotropy

Answer: C

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123. Ionic solids are generally

A. good conductor of electricity

B. soft

C. volatile

D. quite brittle

Answer: D

124. The force that holds kernels together in the crystal is called _____

    A. ionic bond

    B. hydrogen bond

    C. vovalent bond

    D. metallic bond

Answer: D

125. The smallest portion of a space lattice which can generate the crystal by repeating its dimensions is _____

A. cell

B. unit cell

C. unit lattice

D. space lattice

Answer: B

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126. The unit cell with crystallographic dimensions, $a \neq b \neq c, \alpha = \gamma = 90°$ and $\beta \neq 90°$ is :

A. triclinic

B. monoclinic

C. rhombic

D. cubic

Answer: B

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127. The unit cell with the crystallographic dimension $a = b \neq c, \alpha = \beta = 90°, \gamma = 120°$ is

A. rhombic

B. trigonla

C. tetragonal

D. hexagonal

Answer: D

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128. The ratio of close packed atoms to octahderal holes in hexagonal close packing is

A. $1:1$

B. $1:2$

C. $2:1$

D. $1:3$

Answer: B

129. What is the number of atoms per unit cell in a body

centred cubic structure ?

A. 1

B. 2

C. 4

D. 8

Answer: B

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130. In the closest packing of atoms

A. the size of tetrahedral void is greater than that of octahedral void

B. the size of tetrahedral void is equal than that of octahedral void

C. the size of tetrahedral void is smaller than that of octahedral void

D. the size of tetrahedral void is greater than that of octahedral void

Answer: C

131. The number of tetrhedral sites per sphere in ccp structure is

   A. 4

   B. 3

   C. 2

   D. 1

Answer: C

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132. In the closest packing atoms, there are

   A. one tetrahedral void and two

B. two tetrhedal voids and one octahedral void per atom

C. two of each tetrahedral and octahedral vods aer atom

D. one of each tetrahedral and octahedral void per atom

Answer: B

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133. The number of atoms in $100g$ of an fcc crystal with density $= 10.0 gcm^{-3}$ and cell edge equal to $200 \pm$ is equal to

A. 6×10^{24}

B. 4.8×10^{25}

C. 1.2×10^{25}

D. 1.2×10^{24}

Answer: C

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134. An ionic compound is expected to have octahedral structure if $r_c/r_a (r_c < r_a)$ lies in the range of:

A. 0.414 to 0.732

B. 0.732 to 0.414

C. 0.155 to 0.255

D. 0.225 to 0414

Answer: A

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135. An ionic crystal has r_c/r_a radius of 0.542. Its coordination number is

A. 2

B. 6

C. 4

D. 8

Answer: B

136. Number of ideal unit cell present in 2 g NaCl are _____

$(Na = 23 = , Cl = 35.5)$

    A. 5.14×10^{21}

    B. 2.57×10^{21}

    C. 1.26×10^{23}

    D. 5.14×10^{21}

Answer: A

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137. In the body centered cubic unit cell and simple unit cell, the radius of atoms in terms of edge length (a) of the unit cell is respectively:

A. $\dfrac{a}{2}$

B. $\dfrac{a}{\sqrt{2}}$

C. $\dfrac{a}{2\sqrt{2}}$

D. $\dfrac{\sqrt{3}}{4}a$

Answer: D

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138. The edge length of NaCl unit cell is 564 pm. What is the density of NaCl in g/cm^3?

A. $1.082gcm^{-3}$

B. $2.165mcm^{-3}$

C. $3.247gcm^{-3}$

D. $4.330gcm^{-3}$

Answer: B

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139. The fraction of volume occupied by atoms in a face centered cubic unit cell is:

    A. 0.48

    B. 0.53

    C. 0.68

    D. 0.74

Answer: D

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140. Ice crystallises in hexagonal lattice having volume of unit cell is $132 \times 10^{-24} cm^3$.If density is 0.92g cm^3 at a given temperature, then number of water molecules per unit cell is

A. 1

B. 2

C. 3

D. 4

Answer: D

141. How many "nearst" and "next nearst" neighbours, respectively, does potassium have in bcc lattice?

A. 8,8

B. 8,6

C. 6,8

D. 6,6

Answer: A

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142. In an ionic compound A^+X^-, the radii of A^+ and X^- ions ar 1.0pm and 2.0om, respectively. The volume of the unit cell of the crystal AX will be:

A. $27pm^3$

B. $64pm^3$

C. $125pm^3$

D. $216pm^3$

Answer: D

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143. For a solid with the following structure, the co-ordination number of the point A and B resepectively are
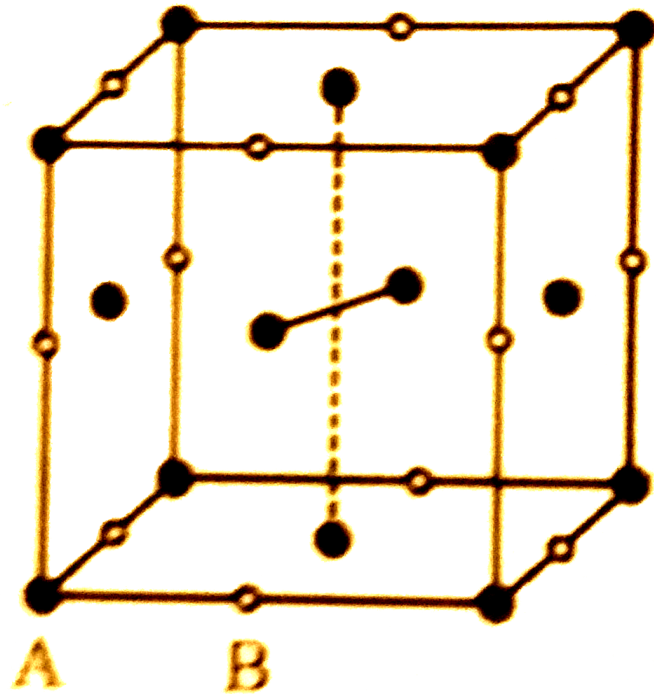
A. 6,8

B. 8,8

C. 6,6

D. 4,6

Answer: C

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144. If a stands for the edge length of the cubic system : simple cubic, body — centred cubic anf face — centred cubic, then the ratio of radii of the spheres in these systems will be respectively:

A. $\dfrac{1}{2}a : \dfrac{\sqrt{3}}{4}a : \dfrac{1}{2\sqrt{2}}a$

B. $\dfrac{1}{2}a : \sqrt{3a} : \dfrac{1}{\sqrt{2}}a$

C. $\dfrac{1}{2}a : \dfrac{\sqrt{3}}{a}a : \dfrac{\sqrt{3}}{2}a$

D. $1a : \sqrt{3}a : \sqrt{2}a$

Answer: A

145. The volume of atom present in a face-centred cubic unit cell of a metal (r is atomic radius) is

A. $\dfrac{12}{3}pr^3$

B. $\dfrac{16}{3}pr^3$

C. $\dfrac{20}{3}pr^3$

D. $\dfrac{24}{3}pr^3$

Answer: B

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146. Which arrangement of electron decides ferrimagnetism?

A. ↑ ↑ ↑ ↑ ↑

B. ↑ ↓ ↑ ↓

C. ↑ ↑ ↑ ↓ ↓

D. ↓ ↓ ↑ ↑

Answer: A

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147. Copper crystallises in face-centred cubic lattice with a unit cell length of 361 pm. What is the radius of copper atom in pm?

A. 157

B. 181

C. 108

D. 128

Answer: D

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148. Number of unit cell in 8 g of X (atomic mass =40) which crystallizes in bcc pattern is $(N_A$= Agogardro number)

A. $0.5Na_A$

B. $0.1N_A$

C. $0.2N_A$

D. $2N_A$

Answer: B

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149. Which of the folloiwng statement for cyrstals having Schottly defect is not correct?

A. Schottky defect aries due to the absence of a cation or aniona from the position which it is excepted to occupy

B. Schottky defect are more common in ionic compound with high coordination numbers

C. The density of crystals having Schottky defect is larger than that of the perfect crystal

D. The crystal having Schottky defect is electrical neutral as a whole

Answer: C

150. In crystalline solids, few of the cations moved from their positions into the interstitial position . The defect is called as

    A. Interstitial defect

    B. Frenkel defect

    C. Schottky deffect

    D. Line defect

Answer: A

151. One gram of magnesium contains approximately _____

A. 3

B. 10^3

C. 10^{30}

D. 10^{22}

Answer: D

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152. The unbalance spin of electron exhibit

A. magnetism

B. spectra

C. visible colours

D. allotropy

Answer: A

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153. Which of the following is very soft solid.

A. Metallic

B. Covalent

C. molecules

D. Iron

Answer: C

154. Which of the folliwing is true metallic solid ?

A. Metallic sodis do not melt

B. Metallic solids have low melting point

C. Mentallic solids melts instantly

D. Metallic solids havehigh melting point

Answer: D

155. The bcc crystal contains 4×10^{24} atoms. The number of

unit cell is present are

A. 8×10^{24}

B. 2×10^{24}

C. 4×10^{24}

D. 1×10^{24}

Answer: B

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156. Schottky defect is possible in

A. $CaCl_2$

B. $NaCl$

C. Al_2O_3
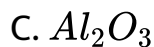
D. both (a) and (b)

Answer: D

157. Which of the following is correct ?

    A. Schottky defect decreases the density of the crystal

    B. Schottky defect increases the electrical conductivity of

       the crystal

    C. The stoichiometric defect increases the electrical

       conductivity of the crystal

    D. Frenkel defet is common for non-polar molecules

Answer: A

158. Which type of crystal defect is indicated by the diagram given below ?

$$Na^+Cl^-Na^+Cl^-Na^+Cl^-$$

$$Cl^-Cl^-Na^+Na^+$$

$$Na^+Cl^-Cl^-Na^+Cl^-$$

$$Cl^-Na^+Cl^-Na^+Na^+$$
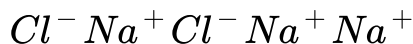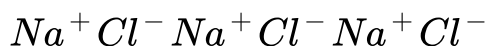
    A. Frenkel defect

    B. Frenkel and Schottyk defects

    C. Interstitial defect

    D. Schotttky defect

Answer: D

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159. An ionic compound has a unit cell consisting of A ions at the corners of cube and B ions on the centers of the face of the cube. The empirical formula for this compound would be:

A. AB

B. A_2B

C. AB_3

D. A_3B

Answer: C

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160. The volume of atom present in a face-centred cubic unit cell of a metal (r is atomic radius) is

A. $\dfrac{20}{3}\pi r^3$
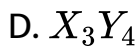
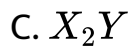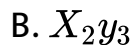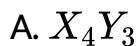B. $\dfrac{24}{3}\pi r^3$

C. $\dfrac{12}{3}\pi r^3$

D. $\dfrac{16}{3}\pi r^3$

Answer: D

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161. In a compound ,atoms of element Y from ccp lattice and those of element X occupy 2/3rd tetrahedral voids.The formula of the compound will be:

A. X_4Y_3

B. X_2y_3

C. X_2Y

D. X_3Y_4

Answer: A

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162. Copper crystallises in fcc with a unit cell length of 361 pm. What is the radius of copper atom?

A. 108 pm

B. 127 pm

C. 157 pm

D. 181 pm

Answer: B

163. The edge length of face centred cubic cell of an ionic substance is 508pm. If the radius of cation is 110 pm, the radius of anion is :
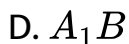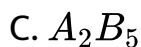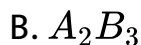
A. 288 pm

B. 299 pm

C. 618 pm

D. 144 pm

Answer: D

164. In a face centred cubic lattice, atom A occupies the corner positions and atom B occupies the face centred positions. If one atom of B is missin from one of the face centred points,, the formula of the compound is :

A. AB_2

B. A_2B_3

C. A_2B_5

D. A_1B

Answer: C

165. Lithium forms body centred cubic structure. The length of the side of its unit cell is 351 pm. Atomic radius of the lithium will be

A. 75 pm

B. 300 pm

C. 240 pm

D. 152 pm

Answer: D

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166. The coordination number of a metal crystallizing in a hexagonal close-packed structure is

A. 12

B. 4

C. 8

D. 6

Answer: A

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167. A metal X crystallises in a face-centred cubic arrangement with the edge length 862 pm. What is the shortest separation of any two nuclei of the atom ?

A. 406 pm

B. 707 pm

C. 862 pm

D. 609.6 pm

Answer: D

168. A compound formed by two elements M and N. Element N forms ccp and atoms of M occupy $1/3rd$ of tetrahedral voids. What is the formula of th compound?
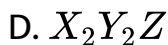
A. Y_2Z_3

B. YZ

C. YZ_3

D. Y_2Z

Answer: A

169. If there elements X, Y & Z crystallize in cubic solid latice with X atoms at corners, Y atoms at cube centre & Z-atoms at the edges, then the formula of the compound is

A. XYZ

B. XYZ_2

C. XYZ_3

D. X_2Y_2Z

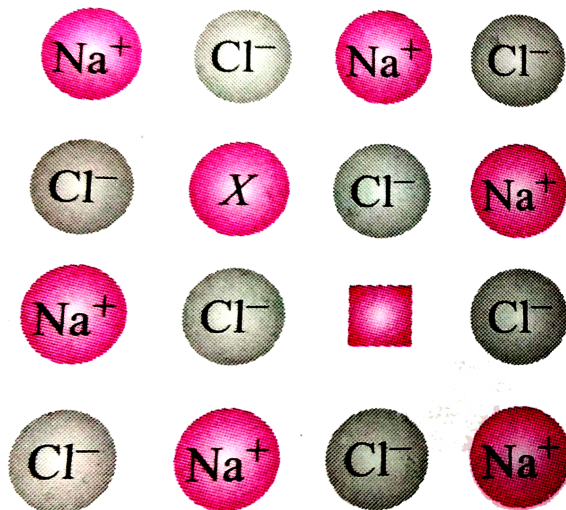**Answer: C**

170. In the given crystal structure what should be the cation X which replaces Na^+ to create a cation vacancy ?
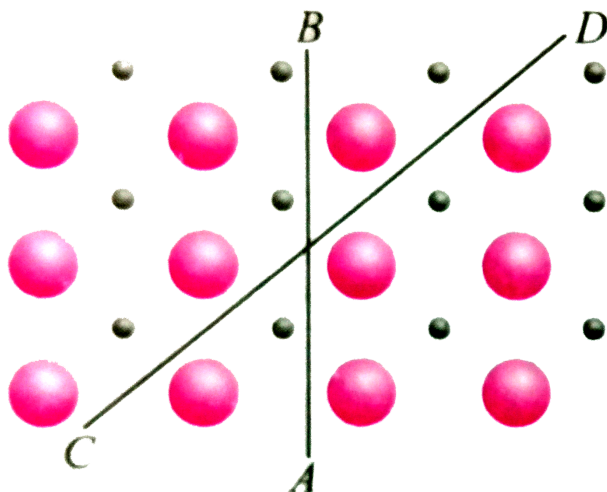

A. Sr^{2+}

B. K^+

C. Li^+

D. Br^-

Answer: A

171. Study the figure of a solid given below depicting the arrangement of particles. Which is the most appropriate term used for the figure ?

A. Isotropy

B. Anistropy

C. Irregular shape

D. Amorphous nature

Answer: B

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172. In CaF_2 type (fluorite structure) Ca^{2+} ions form W structure and F^- ions are present in all X voids. The coordination number of $Ca^{2=}$ is Y and F^- is Z. W,X,Y and Z respectively are

A.
W	X	Y	Z
ccp	octahedral	8	4

B.
X	X	Y	Z
bcc	tetrahedral	4	8

C.
X	X	Y	Z
bcc	tetrahedral	4	8

	X	X	Y	Z
D.	bcc	octdedral	4	8

Answer: C

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173. Completen the following table :

Point Defects
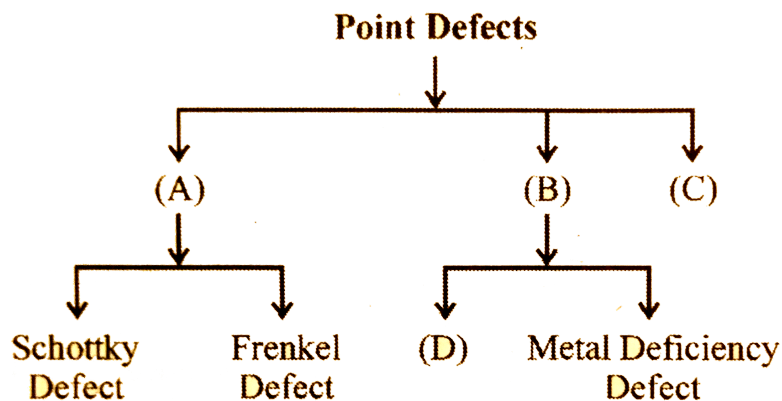
A. A- mpurity defect, B-Stoichoimetric defect, C-Nonstoichiometric defect, D-Anion excess defect

B. A-Stoichiometric defect. B-Non stoichoiometric defect, F-Impurity defect, D-Metal excess defects

C. A-Stoichiometric defect, B -Stoichiometric defect, C-Impurity defects, ,D-Cation vacancy

D. A-non stichometric defect, B-Stoichiometric defect, C-Metal excess defects, D-non stoichiometric defects

Answer: B

174. Zince oxide loses oxygen on heating accroding to the reaction

$$ZnO \xrightarrow{\text{heat}} Zn^{2+} \frac{1}{2}O_2 + 2e^-$$
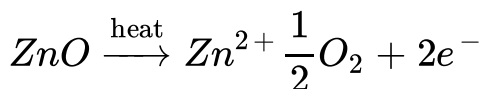
It becomes yellow heating because

A. Zn^{2+} ions and electrons move the intertitial sites and

F-centres are created

B. Oxygen and electrons move out of the crystal and ions

become yellow

C. Zn^{2+} again combine with oxygen to give yellow oxide

D. Zn^{2+} are replaceed by oxygen

Answer: A

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175. In the table given below, dimensions and angles of

various crystals are given . Complete the table by filling the

blanks.

Type of crystal	Dimensions	Angles
1. Cubic	$a = b = c$	$\alpha = \beta = \gamma =$ _p_
2. Tetragonal	_q_	$\alpha = \beta = \gamma = 90°$
3. Orthorhombic	$a \neq b \neq c$	_r_
4. Hexagonal	_s_	$\alpha = \beta = 90°, \gamma =$ _t_

A.

$$p \qquad q \qquad r \qquad\qquad s \qquad\qquad t$$
$$90° \quad a = b \neq c \quad \alpha = \beta = \gamma = 90° \quad a = b \neq c \quad 120°$$

B.

$$p \qquad q \qquad r \qquad\qquad s \qquad\qquad t$$
$$90° \quad a = b \neq c \quad \alpha = \beta = \gamma = 90° \quad a = b \neq c \quad 120°$$

C.

$$p \qquad q \qquad r \qquad\qquad s \qquad\qquad t$$
$$90° \quad a \neq b = c \quad \alpha = \beta = \gamma = 120° \quad a \neq b \neq c \quad 90°$$

D.

$$p \qquad q \qquad r \qquad\qquad s \qquad\qquad t$$
$$120° \quad a \neq b \neq c \quad \alpha \neq \beta \neq \gamma \neq 90° \quad a \neq b = c \quad 120°$$

Answer: A

176. In zinc blende structure anions are arranged in ccp and cations are present in the tetrachedral voids and only half the tetrahedral voids are occupied,

the coordination numbers of cation and anion are respectively

   A. zinc ions occupy half of the tetrahedra sites

   B. each zn^{2+} ion is surrounded by six sulphide ions

   C. each S^{2-} ion is surrounded by six Zn^{2+} ions

   D. it has fcc structure

Answer: A

177. If the radius of octaherdal void is 'r' and radius of the atoms in close packing is 'R', then the relation between 'r' and 'R' is

A. $r = 0.414$ R

B. $R = 0.414$ r

C. $r = 2R$

D. $r = \sqrt{2}R$

Answer: A

178. A metallic crystal cystallizes into a lattice containing a sequence of layers $ABABAB....$ Any packing of spheres leaves out voids in the lattice. What percentage by volume of this lattice is empty spece?

A. $72\,\%$

B. $48\,\%$

C. $32\,\%$

D. $26\,\%$

Answer: D

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179. The volume of atom present in a face-centred cubic unit cell of a metal (r is atomic radius) is

A. $\dfrac{12}{3}\pi r^3$

B. $\dfrac{16}{3}\pi r^3$

C. $\dfrac{20}{3}\pi r^3$

D. $\dfrac{24}{3}\pi r^3$

Answer: B

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180. What is the two-dimensional coordination number of a molecule in square close-packed layer?

A. 2

B. 3

C. 4

D. 6

Answer: C

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181. Which of the following shows correct range of conductivity ?

(i)Conductors : 10^4 to $10^7 ohm^{-1}m^{-1}$

(ii)insulators : 10^{-6} to $10^4 ohm^{-1}m^{-1}$

(iii)Semiconductors : 10^{-10} to $10^{-6} ohm^{-1}m^{-1}$

A. (i) and (ii)

B. (i) only

C. (ii) and (iii)

D. (i) , (ii) and (iii)

Answer: B

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182. The conductivity of intrinsic semiconductors can be increased by adding a suitable impurity . This process is called A . This can be done with an impurity which is Such impurities introduce B rich or deficient as compared to the semiconductor. Such impurities introduce C defects in them. Electron rich impurities result in D type semiconductors

while electron deficit impurities result in E type semiconductors .

A.
A	B	C	D	E
doping	proton	point	p	n

B.
A	B	C	D	E
doping	electron	stoichiometric	p	n

C.
A	B	C	D	E
energy gap	proton	impurity	n	p

D.
A	B	C	D	E
doping	electron	electronic	n	p

Answer: D

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183. InABC ABC packing if the number of atoms in the unit cell is n then the number of tetrhedral voids in the unit cell is equal to

A. $n/4$

B. $n/2$

C. n

D. $2n$

Answer: D

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184. The packing efficiency for a body centred cubic structure is

A. 0.42

B. 0.53

C. 0.68

D. 0.82

Answer: C

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185. Semiconductors are manufactured by addition of impurities of

A. s-block elements

B. actinoids

C. lanthanoids

D. p-block elements

Answer: D

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186. Molecular solids are generally

    A. good conductor of electricity

    B. quite hard

    C. quite brittle

    D. volatile

Answer: D

187. The percent of empty space in a unit cell of hexagonal close-packed structure is-

A. 26 %

B. 32 %

C. 34 %

D. 38 %

Answer: A

188. Copper crystallises in face-centred cubic lattice with a unit cell length of 361 pm. What is the radius of copper atom in pm?

A. 157

B. 181

C. 108

D. 128

Answer: D

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189. In crystalline solids, few of the cations moved from their positions into the interstitial position . The defect is called as

A. Interstitial defect

B. Frnkel defect

C. Schottky deffect

D. Line defect

Answer: A

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190. Which metal crystallises in a simple cubic structure ?

A. Polonium

B. Copper

C. Nickel

D. Iron

Answer: A

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191. In face centred cubic unit cell, what is the volume occupied ?

A. $\dfrac{4}{3}\pi r^3$

B. $\dfrac{8}{3}\pi r^3$

C. $\dfrac{16}{3}\pi r^3$

D. $\dfrac{14r^3}{3\sqrt{3}}$

Answer: C

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192. Which among the following solids is a non-polar solid ?

A. Hydrogen chloride

B. Sulphur dioxide

C. Water

D. Carbon dioxide

Answer: D

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193. What is the hydridization of carbon atoms in fullerene ?

A. SP^3

B. SP

C. SP^2

D. dSP^3

Answer: C

1. The factor which makes a solid to have a low density is

A. close packing

B. large atomic radius

C. high atomic mass

D. high valency

Answer: B

2. The close-packed layers in the faece-centred cubic unit cell are perpendicular to

    A. the face diagonal of the cell

    B. edge of the cell

    C. the body diagonal of the cell

    D. the face of the cell

Answer: C

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3. Bragg equation for the scattering of X-rays by crystal is

A. $n\lambda = 2d\sin\theta$

B. $n\lambda = d\sin\theta$

C. $n\lambda = 2\lambda\sin\theta$

D. $2nd = \lambda\sin\theta$

Answer: A

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4. Which of the following dimensions represent a hexagonal

unit cell ?

A. $a = b \neq c, \alpha = \beta = \gamma = 90°$

B. $a = b = c, \alpha = \beta = \gamma = 90°$

C. $a = b \neq c, \alpha = \beta 90°, = \gamma = 120°$

D. $a = b = c, \alpha = \beta = \gamma = 90°$

Answer: C

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5. Which of the following lattices does not have only primitive Bravais lattice ?
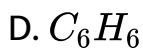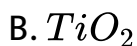
    A. Lattice with unit cell monoclinic

    B. Lattice with unit cell trigonla

    C. Lattice with unit cell triclinic

    D. Lattice with unit cell hexagonal

Answer: A

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6. Which of the following species is not paramagnetic?

A. TiO_2

B. TiO_2

C. $NaCl$

D. C_6H_6
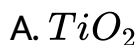
Answer: B

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7. When electron are trapped into the crystal in anion cancy ,the defect is known as

A. Frenkel defect

B. Schottky defect

C. Interstitial defect

D. F-centre

Answer: D

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8. The $8 : 8$ type packing is present in

A. CsCl

B. CaF_2

C. $NaCl$

D. KCl

Answer: A

9. The unit cell length of sodium chloride crystal is 360 pm. Its density would be

A. $4.632 gm^{-3}$

B. $6.267 gm^{-3}$

C. $8.327 gcm^{-3}$

D. $9.732 gcm^{-3}$

Answer: C

10. A substance which has face-centred cubic crystal has a density of $2.16 gcm^{-3}$ and the edge lenghtof the unit cell equal to 564 pm. The molar mass of the substanceis

    A. $71 gmol^{-1}$

    B. $58.35 gmol^{-1}$

    C. $43.8 gmol^{-1}$

    D. $36.5 gmol^{-1}$

Answer: B

11. The fraction of volume occupied by atoms in a face centered cubic unit cell is:

A. 0.26

B. 0.32

C. 0.70

D. 0.74

Answer: B

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12. The unit cell of an element having atomic mass 100 and

density $12 gcm^{-3}$ is a cube with edge length 300 pm, the

structure of crystal lattice is

A. fcc

B. bcc

C. simple cubic

D. None

Answer: B

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13. A solid AB has $NaCl$ structure. If the radius of the cation A is 100 pm, what is the radius of anion B?

A. 100 pm

B. 173.5 pm

C. 241.5 pm

D. 483 pm

Answer: C

14. The phenomenon in which different chemical substances

exhibit the same crystalline forms is known as

    A. isomorphism

    B. polymorphism

    C. enantiotropy

    D. monotropy

Answer: A

15. In a close packed array of N spheres, the number of tetrahedral holes are

A. $\dfrac{N}{2}$

B. N

C. 2N

D. 4 N

Answer: C

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16. Solid iodine (I_2) is an example of

A. ionic solid

B. molecular solid

C. covalent solid

D. metallic solid

Answer: B

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17. Which of the crystals should be the softest and have the lowest boiling point?

A. Ionic crystals

B. Covalent crystal

C. Metallic crystals

D. Molecular crystals

Answer: D

18. A semiconductor of Ge can be made p-type by adding

    A. monovalent-impurity

    B. triavlent-impurity

    C. tetravelent-impurity

    D. pentavalent-impurity

Answer: B

19. What is the co-ordination number of each sphere in

(i) Hexagonal close packed structure.

(ii) Cubic close packed structure.

(iii) Body centred cubic packed structure.

A. 4

B. 6

C. 8

D. 12

Answer: D

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20. In a ferromagnetic material

A. all the magnetic moment vectors are aligned in one

direction

B. half of magnetic moment vectors point in one

direction and the rest in the opposite direction

C. is chracterised by small magnetic moment

D. all the magnetic moment vectors are randomly

oriented

Answer: A

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21. Which of the following expressions is correct in the case

of a sodium chloride unit cell (edge length, a)?

A. $r_c + r_a = a$

B. Co-ordination number of $Na^+ = 6, Cl^- = 6$

C. $r_a = \dfrac{\sqrt{3}}{4}$

D. Co-ordination number of $Na^+ = 8, Cl^- = 8$

Answer: B

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22. Which of the following is not correct consequences of

Schottky defect ?

A. Stability of crystal decreases

B. Lattice energy of crystal increases

C. Density decreases

D. Electricity conductivity increases

Answer: B

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23. In a molecular crystal the corces holding together the atoms within a given molecule are

    A. ionic bonds

    B. metallic bonds

    C. covalent bonds

    D. van der waal's forces

Answer: C

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24. Sodium metal crystallises in body centred cubic lattic

with cell edge $4.29Å$ .What is the radius of sodium atom ?

A. $1.86Å$

B. $1.86Å$

C. 1.86 om

D. 18.6 pm

Answer: B

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25. Metallic gold crystallizes in body centred cubic lattice. The co-ordination numberof gold is ....

    A. zero

    B. four

    C. six

    D. eight

Answer: D

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26. Calculate the following:

a. Number of Zns units in a unit cell of zine blende.

b. Number of CaF_2 unit cell of CaF_2.

A. 1

B. 2

C. 4

D. 6

Answer: C

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27. Which of the following transition metal oxides isnot an
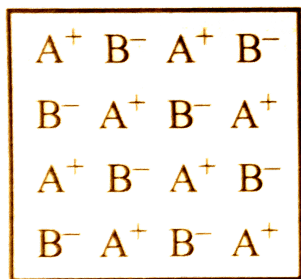
insulator?
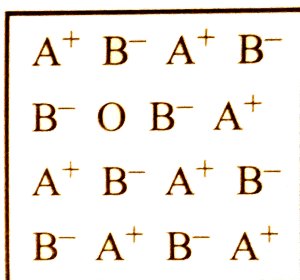
A. V_2O_5

B. CrO_2

C. MnO_2

D. FeO

Answer: B

---

28. The arrangement in an ideal crystal AB and a defect

structured crystal is shown below.

A^+	B^-	A^+	B^-
B^-	A^+	B^-	A^+
A^+	B^-	A^+	B^-
B^-	A^+	B^-	A^+

Ideal crystal

A^+	B^-	A^+	B^-
B^-	O	B^-	A^+
A^+	B^-	A^+	B^-
B^-	A^+	B^-	A^+

Defect structure

The illustrates the example of

A. Frankel defect

B. Schottky defect

C. Metal excess defect

D. Metal deficient defect

Answer: A

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29. If the alignment of magnetic moment in a substance is in

a compensatory way to as to give zero net magnetic

moment, thenthe substance is said to be

A. ferromagnetic

B. ferrimagnetic

C. diamgnetic

D. anti-ferromagnetic

Answer: D

---

30. Rock slat type structure is not adopted by

A. $CuCl$

B. $LiCl$

C. $AgCl$

D. MgO

Answer: A