

Entry No. \_\_\_\_\_ Name \_\_\_\_\_ Group 7

Fill in the blanks using the appropriate word/s, number, symbol or phrase from the list given below:

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 0.225, 0.414, 0.732,  $\frac{\pi}{6}$ ,  $\frac{\pi\sqrt{3}}{16}$ ,  $\frac{\pi\sqrt{3}}{8}$ ,  $\frac{\pi}{3\sqrt{2}}$ , {100}, {110}, {111}, (100), (110), (111), [111],  $[\bar{1}11]$ ,  $[1\bar{1}1]$ ,  $[11\bar{1}]$ ,  $[1\bar{1}\bar{1}]$ ,  $[\bar{1}\bar{1}\bar{1}]$ ,  $[\bar{1}\bar{1}1]$ ,  $[\bar{1}1\bar{1}]$ , (100), (010), (001),  $(\bar{1}00)$ ,  $(0\bar{1}0)$ ,  $(00\bar{1})$ ,  $\langle 100 \rangle$ ,  $\langle 110 \rangle$ ,  $\langle 111 \rangle$ , (200), (210), (211),  $\frac{a}{2\sqrt{2}}$ ,  $\frac{a}{\sqrt{2}}$ ,  $\sqrt{2}a$ ,  $\frac{\sqrt{3}a}{4}$ ,  $\frac{\sqrt{3}a}{2}$ ,  $\sqrt{3}a$ ,  $\exp(-\frac{E}{kT})$ ,  $\exp(-\frac{\Delta E}{RT})$ , amplifier, atomic diameter, atomic radius, base-centred monoclinic, bridge, can, cannot, copper, cubic, diamond, electron, fraction, globally maximum, globally minimum, hexagonal, locally maximum, locally minimum, optical, probability, rhombohedral, ship hull, silicon, turbine

1. GaAs will have a diffraction pattern similar to Diamond
2. The **single** Miller indices representing **all** the faces of a cubic unit cell is {110}
3. ship hull is the first reflection in the diffraction pattern of BCC crystal.
4. The Maxwell-Boltzmann statistics states that the fraction of atoms having energy  $\geq E$  in Cu specimen is  ~~$\exp(-\frac{E}{kT})$~~   $\exp(-\frac{E}{kT})$
5. In a close-packed plane, each sphere has 12 neighbours.
6. The maximum  $r_c/r_a$  for octahedral coordination is 0.732
7. In ...ABAB... stacking of close-packed planes each sphere is surrounded by 8 tetrahedral voids.
8. Effective number of atoms in the unit cell of cubic silicon is 2
9. A material system is in the state of metastable equilibrium if its free energy is locally minimum
10. The closest distance of approach in an elemental crystal is equal to 0
11. There Can be extensive solid solubility in an interstitial solid solution.
12. The effective number of lattice points in the hexagonal unit cell is 14
13. The Packing efficiency or the Atomic Packing Factor for SC crystal is  $\frac{\pi}{6}$  0.52
14. All the members of a family of directions  $\langle 110 \rangle$  in an orthorhombic unit cell are ~~(40)~~
15. Optical microscope is used to observe features having dimensions of the order of 100 Å.

$$\frac{4}{3} \times \frac{\pi r^3}{\frac{4}{3} \times \frac{\pi r^3}{6}}$$

$$\frac{\pi}{6}$$

Q2 2r

