Q1 –A - Compare between cubic and orthorhombic crystal structure.   (6+6) M arks

    B- Explain Bhor's first postulate

Q2: Choose the correct answer   8   Marks

1- In tetragonal crystal structure a, b, c *lattice parameters are* $(4,6) nm$ respectively volume is
  (A- 144   B- 150   C- 96) $(nm)^3$.

2- If the volume of cubic crystal structure is $125\ (nm)^3$ lattice parameter is
  (A- 25   B-10   **C**-5) $nm.$

3- In body centered cubic is lattice parameter is $4\sqrt{3}\ nm$ radius of crystal is
  (A- 3   B- $\sqrt{3}$.   C - 4).

4- Crystal with lattice points at the corners and lattice points at centers of all faces of the unit cell
  (A- body centered cubic   B- face centered cubic   C-base centered cubic).

5- Types of Bravias lattice are (A**-**7   **B**- 14   C- 4).

Q3 – A- The radius of electron in a fixed element $3.816\ A^0$ with atomic number 5

  Calculate   1- energy of electron   2-velocity of electron in its orbits   3- frequency of electron

  B -Describe region four or region (D) in semiconductor   (8+8) Marks

Q4:   14 Marks

1- If all atoms are of the same kind or different kind crystals are called ------- and ------- respectively.
2- Splitting of energy levels of isolated atoms into ----- in --------.
3- - If orbital quantum number is 3 the subshell is called ---- and number of electron are ------
4- Long and short order crystal structure are called ------- and -------- respectively

Best wishes

      Instructor: Dr Abbas H Rostam

       Signature

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Kurdistan Regional Government Iraq
Ministry of Higher Education & Scientific Research
University –Erbil
Education
Department : General Science

Module : solid state phys
Stage : fourth   Salahaddin
Round: **College of Basic**
Time : 75 min

Exams
4-12- 2021-

Q1 – Note from   B and C answer only one

A - Compare between cubic and orthorhombic crystal structure.   **(6+6) M arks**

    B- Explain Bhor's first postulate

    C-Compare between Primitive and none Primitive unit cell

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