# B.Sc. DEGREE EXAMINATION,APRIL 2019
## III Year V Semester
## Inorganic Chemistry - I

**Time : 3 Hours** **Max.marks :60**

### Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. Define isotones with an example.
2. Explain mirror nuclei with an example.
3. W hat are magic numbers?
4. Define decay constant.
5. Define average life period.
6. Explain why $Cu^{2+}$ salts are coloured while $Zn^{2+}$ salts are white?
7. Explain why transition metals show variable oxidation states?
8. Calculate the magnetic moment of Cu (II) (Z= 29) on the basis of spin only formula.
9. Mention any two uses of lanthanides.
10. Explain why ionic radius decrease from La to Lu?
11. Write two advantages of gaseous fuel.
12. Write composition of carburetted water gas.

### Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Discuss the liquid drop models and its features.
14. Explain group displacement law of radioactivity.
15. Completethe reactions
    a. $_{11}Na^{23}(n, \beta) \longrightarrow$
    b. $_{13}Al^{27}\ (n, p) \longrightarrow$
    c. $_{20}Ca^{40}\ (n, \alpha) \longrightarrow$
    d. $_{15}P^{30}(\ldots., p) \longrightarrow S^{33}$
16. Write the role of calcium in human system.
17. Discuss the properties of vanadium group metals.
18. Explain how lathanides are separated by ion exchange method.
19. Write any applications of nanochemistry.

## **Section C** $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Explain the following

    (a) Meson theory (b) N/P ratio

21. (a) Explain how GM counter is work. (b) Explain nuclear fusion and discuss source of energy of the sun.

22. Give the comparative study of titanium group metals with respect to their (a) oxidation states (b) magnetic properties (c) color (d) catalytic properties.

23. (a) Discuss the magnetic properties, oxidation states and color of lanthanides

    (b) Define the term lanthanide contraction and discuss its effect.

24. (a) Explain the synthesis of nano materials by sol gel method

    (b) Write the composition, preparation and uses of water gas.

# B.Sc. DEGREE EXAMINATION,APRIL 2019
## III Year V Semester
## Inorganic Chemistry - I

**Time : 3 Hours** **Max.marks :60**

### Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. Define isotones with an example.
2. Explain mirror nuclei with an example.
3. W hat are magic numbers?
4. Define decay constant.
5. Define average life period.
6. Explain why $Cu^{2+}$ salts are coloured while $Zn^{2+}$ salts are white?
7. Explain why transition metals show variable oxidation states?
8. Calculate the magnetic moment of Cu (II) (Z= 29) on the basis of spin only formula.
9. Mention any two uses of lanthanides.
10. Explain why ionic radius decrease from La to Lu?
11. Write two advantages of gaseous fuel.
12. Write composition of carburetted water gas.

### Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Discuss the liquid drop models and its features.
14. Explain group displacement law of radioactivity.
15. Completethe reactions
    a. $_{11}Na^{23}(n, \beta) \longrightarrow$
    b. $_{13}Al^{27}\ (n, p) \longrightarrow$
    c. $_{20}Ca^{40}\ (n, \alpha) \longrightarrow$
    d. $_{15}P^{30}(\ldots., p) \longrightarrow S^{33}$
16. Write the role of calcium in human system.
17. Discuss the properties of vanadium group metals.
18. Explain how lathanides are separated by ion exchange method.
19. Write any applications of nanochemistry.

## **Section C** $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Explain the following

    (a) Meson theory (b) N/P ratio

21. (a) Explain how GM counter is work. (b) Explain nuclear fusion and discuss source of energy of the sun.

22. Give the comparative study of titanium group metals with respect to their (a) oxidation states (b) magnetic properties (c) color (d) catalytic properties.

23. (a) Discuss the magnetic properties, oxidation states and color of lanthanides

    (b) Define the term lanthanide contraction and discuss its effect.

24. (a) Explain the synthesis of nano materials by sol gel method

    (b) Write the composition, preparation and uses of water gas.