

NAME:		ROLL NO:		TIME:	30: MIN
SUB:	Chemistry	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 2 (Atomic Structures)	T. MARKS	26	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x26=26)

- The quantum number 'm' of a free gaseous atom is associated with:**
 - The effective volume of the orbital
 - The shape of the orbital
 - The spatial orientation of the orbital
 - The energy of the orbital in the absence of a magnetic field
- When 3d subshell is completely filled, the next entering electron goes into:**
 - 4f
 - 4s
 - 4p
 - 4d
- Quantum number values for 2p orbitals are:**
 - $n = 2, l = 1$
 - $n = 1, l = 2$
 - $n = 1, l = 0$
 - $n = 2, l = 0$
- An electron having the set of values: $n = 4, l = 0, m = 0$ and $s = +1/2$ lies in:**
 - 2s
 - 3s
 - 4s
 - 5s
- The quantum number values for the fourth electron of ${}^9_4\text{Be}$ atom are:**
 - 1,0,0
 - 2,0,0
 - 2,1,0
 - 1,1,1
- The correct order of first ionization energies is:**
 - $F > He > Mg > N > O$
 - $He > F > N > O > Mg$
 - $He > O > F > N > Mg$
 - $N > F > He > O > Mg$
- A P orbital has a characteristic shape with how many lobes?**
 - 1
 - 2
 - 3
 - 4
- The three p orbitals in a given energy level are oriented:**
 - Along the same axis.
 - At 45° to each other.
 - Mutually perpendicular to each other along the x, y, and z axes.
 - In a complex tetrahedral arrangement.
- How many d orbitals are there in a given energy level?**
 - 1
 - 3
 - 5
 - 7
- What information does the principle quantum number (n) give us about orbitals?**
 - Size
 - Shape
 - Size and shape
 - Spin
- How many unpaired electrons are present in an atom of cobalts?**
 - Two
 - Three
 - Four
 - Five
- What does the electron configuration $1S^2 2S^2 2P^6$ represent?**
 - Carbon (C)
 - Oxygen (O)
 - Neon (Ne)
 - Helium (He)
- Which subshell can hold a maximum of 10 electrons?**
 - s
 - p
 - d
 - f
- How many unpaired electrons are there in the electron configuration d^5 ?**
 - 0
 - 1
 - 2
 - 5

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15. Which element has the electron configuration $s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$?
(A) Iron (Fe) (B) Zinc (Zn) (C) Nickle (Ni) (D) Copper (Cu)
16. What is the electron configuration of a chlorine ion (Cl^-)?
(A) $1s^2 2s^2 2p^6 3s^2 3p^6$ (B) $1s^2 2s^2 2p^6 3s^2 3p^5$ (C) $1s^2 2s^2 2p^6 3s^2 3p^7$ (D) $1s^2 2s^2 2p^6 3s^2 3p^8$
17. As we move away from nucleus the distance between the adjacent orbits goes on:
(A) Increasing (B) Decreasing (C) Remains same (D) May increase or decrease
18. Which of the following has the same number of electrons as that of α -particles:
(A) Li^+ (B) H^+ (C) He^+ (D) Be^{+2}
19. Which of the following orders with respect to relative energy is incorrect:
(A) $2s < 2p$ (B) $2p < 3p$ (C) $3p < 3d$ (D) $4d < 3s$
20. After filling the 4s orbital the entering electron goes into:
(A) 4p (B) 5s (C) 3d (D) 4f
21. Which of the following particles contains 20 neutrons, 19 protons and 18-electrons?
(A) ${}^{39}_{19}K^+$ (B) ${}^{39}_{19}K$ (C) ${}^{40}_{18}Ar$ (D) ${}^{39}_{20}Ca$
22. Which of the following has maximum number of unpaired electrons?
(A) Fe^{+3} (B) Zn^{+2} (C) Ni^{+2} (D) Cu^+
23. According to $(n + 1)$ rule. Which one of the following has the highest energy?
(A) 2s (B) 3s (C) 3p (D) 2p
24. How many unpaired electrons are in the 3d sub-shells of an element with an $Z = 24$?
(A) 2 (B) 3 (C) 4 (D) 5
25. With increase in the value of principal quantum number 'n' the shapes of the s-orbital remain same although their sizes.
(A) Increase (B) Decrease
(C) Remain the same (D) May or may remain the same
26. The correct order of sub-shells, within a shell w.r.t decreasing energy is:
(A) $f < d > s > p$ (B) $f > d > p > s$ (C) $s > p > d > f$ (D) $p > s > f > d$



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Answer Key

1	C	2	C	3	A	4	C
5	B	6	B	7	B	8	C
9	C	10	A	11	B	12	C
13	C	14	D	15	C	16	A
17	A	18	B	19	D	20	C
21	A	22	A	23	C	24	D
25	A	26	B				