STRUCTURE OF ATOM

½ mark Questions

1.An remission spectrum consists of bright spectral lines on a dark back ground. Which one of the following does not correspond to the bright lines.

1) Frequency of emitted radiation 2) Wave length of emitted radiation

3) Energy of emitted radiation 4) Velocity of light calculate the

2.Maximum number of electrons that can be accommodated in M shell of an atom?

3.What are the number of orbitals present in orbit having l=1?

4.Which quantum number provides information about size and energy of stationary orbit?

5.What are the total number of orbitals present in 3rd shall?

6.Which of the following orbits has least energy

1) K 2) L 3) M 4) N

7.Calculate the number of elliptical orbits present in n=6?

8.Which of the following spectrum explained by Bohr's model?

1) He^{+} 2) Li^{2+} 3) H 4) All

9.Match the following Number of electrons filled in the

l	**sub shell**
1) 0	P) 14
2) 1	Q) 6
3) 2	R) 10
4) 3	S) 2

10. **Statement I :** S-sub shell has spherical shape

Statement II : P-sub shell has dumbell shape

Write which statement is correct?

11.Arrange the orbitals in ascending order of their energies.

4s, 3p, 4p, 3d

12.What are the maximum and minimum values of l for N orbit.

13.What is speed of electromagnetic wave?

14.What is the colour of Cupric chloride in flame?

15.Which colour has least wave length in VIBGYOR?

16.Human beings : Finger print : : _____ : Line spectrum

a) Compound b) Mixture c) Element d) All of these

17.**Assertion (A) :** As wave length increase frequencies of electromagnetic wave decreases

Reason (R) : The relation between wave length and frequency of electromagnetic radiation is $\lambda \alpha \nu$

a) A and R are correct, R is correct explanation of A

b) A and R are correct, R is not correct explanation of A

c) A is correct and R is not correct

d) A is incorrect and R is correct.

18.Which of the following are correct statements.

P : $\in = h\nu$ is called plank's equation

Q: h is called plank's constant

R : h value is $6.626 \times 10^{-34} J$

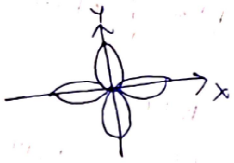
S : According to plank electromagnetic energy is always emitted in multiples of $\frac{h}{\nu}$

a) Only P b) P and Q c) R,Q and R d) All of these

19. If an element has 3 electrons in M shell then what is the name of the element?

20.Name the quantum number which give shape of sub shell?

21.To which boundary surface of d-orbital does it indicate?



22.Match the following

Column-I		**Column-II**
1) l=0	( )	P) d- sub shell
2) l=1	( )	Q) s- sub shell
3) l=2	( )	*R)* f-sub shell
4) l=3	( )	*S)* p-sub shell

23.What is the electronic configuration of Copper?

24.Which is the impossible set of quantum numbers for any electron of an atom is.

a) $n=1, l=0, m_l=0, m_s=\frac{+1}{2}$ b) $n=2, l=2, m_l=1, m_5=\frac{-1}{2}$

c) $n=3, l=2, m_l=1, m_s=\frac{+1}{2}$ d) $n=3, l=0, m_l=0, m_s=\frac{-1}{2}$

25.Find odd one

1) Principal quantum number – n
2) Angular quantum number – l
3) Magnetic quantum number – m_l
4)Spin quantum number – k

26.Which rule is violated in electronic configuration of chromium and copper?

27.Write four quantum numbers of differentiating electron of Potassium?

28.The following orbitals having(n+l)value is 6

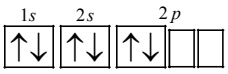
i) 5p ii) 6s iii)4d iv) 4f

a) only I b) Both I and ii c) I, ii, iii d) All of these

29.Copper $[Ar]4s^1 3d^{10}$: : chromium : _____

30.Which rule is violated in this configuration $1s^0 2s^2 2p^3$

31. $Li : 1S^2 2S^1$ :: _____ $: 1S^2 2S^2 2P^6$

32.Which rule is violated in the following electronic configuration 

33.What is the electronic configuration of differentiating electron with given quantum numbers.

n	l	m_l	m_s
4	0	0	-1/2

34.What is the formula used to find total number of electrons filled in a sub shell.

35.If number of electrons filled in M shell is half of total number of electrons filled in K and L shells then what is the name of element!

36. **Statement I :** For P sub shell the m_l values are -1,0

Statement II : For f out shell the m_l values are -2, -1, 0, 1,2

which statement is correct.

37. 3P, 4P degenerate orbitals have
a) same l value and same n value b) same l value and different n value
c) different l value and same n value d) same nl value

38. Which of the following orbital does not lie on axis
a) P_x b) $d_{x^2-y^2}$ c) d_{xy} d) p_y

39. Find the mismatch
a) quantum theory – max plank b) stationary orbits – Rutherford
c) Elliptical orbits – Sommerfeld d) Quantum mechanical model - `Erwin Schrodinger

40. Match the following

1) Principal quantum number	p) orientation of orbitals in space
2) Angular momentum quantum number	q) Size and energy of orbit
3) Magnetic quantum number	r) spin of electron
4) Spin quantum number	s) shape of sub shell`

KEY

1) 4 2) 18 3) 3 4) Principal quantum number
5) 9 6) 1 7) 5 8) 4
9) 1-s, 2-q, 3-r, 4-p 10) Both are correct
11) 3p<4s<3d<4p 12) Maximum value 3, minimum 0
13) $3\times10^8 m/s$ 14) green 15) Violet 16) C
17) c 18) c 19) Aluminium
20) Angular momentum quantum umber 21) $d_{x^2y^2}$ 22) 1-q, 2-s, 3-p, 4-r
23) $[Ar]4s^1 3d^{10}$ 24) b 25) 4 26) Aufbau principle
27)

n	l	m_l	m_s
4	0	0	-1/2

28) c 29) $[Ar]4s^1 3d^5$
30) Aufau principal 31) Nl 32) Hund's principle
33) $4s^2$ 34) 2(2l+1) 35) Titanium
36) Statement I is correct and statement II is incorrect
37) b 38) c 39) b 40) 1-q, 2-s, 3-p, 4-r

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