Tutorial

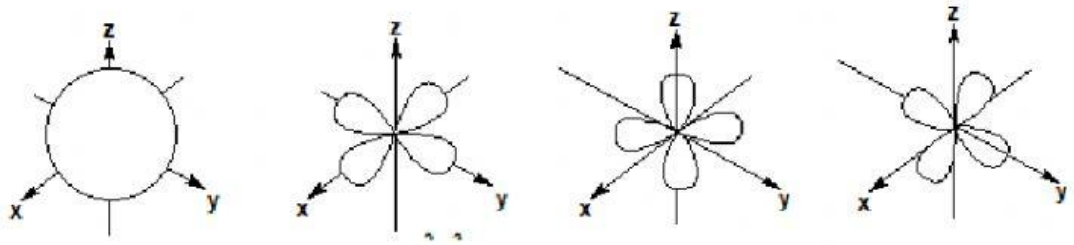
Question 14.

(a) Name the quantum number that represents the shape of an orbital.

(b) The following sets of quantum numbers are the quantum numbers for the valence electrons in atom *J*

n=3, l=2, m=0, s= -½
n=3, l=2, m= +1, s= -½
n=3, l=2, m= -1, s= -½
n=4, l=0, m=0, s= -½
n=4, l=0, m=0, s= +½

i) Label and state the shape of the orbitals



ii) Write the electronic configuration of *J*.

J: 1s 2s 2p 3s 3p 4s 3d

iii) If five electrons are removed from *J*, write the electronic configuration of the ion formed.

5+

J: 1s 2s 2p 3s 3p 4s 3d

(c) Give a possible set of the four quantum numbers for the e in the 3p orbitals in ion J^{5+}.

n	l	m	s

CHAPTER 5: ELECTRONIC CONFIGURATION