INDIAN SCHOOL MUSCAT – SENIOR SECTION – DEPARTMENT OF SCIENCE

QUESTION BANK PHYSICS – CLASS XI (2019 – 20)

S.NO	SECTION-A
1	The atomic number of an atom with IUPAC name Ununoctium is 108 b) 180 c) 118 d) 119
2	The most powerful and least powerful reducing agent among all the alkali metal are a) Li and Na respectively b) Li and Cs respectively c) Cs and K respectively d) Rb and Li respectively
3	Presence of which heavy metal as air pollutant interferes with the development and maturation of red blood cells? Mercury b) Lead c) Chlorofluorocarbons d) BPA
4	The hydration enthalpy of group II ions decreases in the order a) $Ba^{2+}>Sr^{2+}>Ca^{2+}>Mg^{2+}> Be^{2+}$ b) $Be^{2+}>Ca^{2+}>Mg^{2+}>Sr^{2+}>Ba^{2+}$ c) $Be^{2+}>Sr^{2+}>Ba^{2+}>Mg^{2+}> Ca^{2+}$ d) $Be^{2+}>Mg^{2+}> Ca^{2+}>Sr^{2+}>Ba^{2+}$
5	The bond enthalpies of the H_2, N_2 and O_2 molecules are 435,946 and 498 kJ/mol respectively. The correct order of increasing strength of bond is a) $H_2< N_2<O_2$ b) $H_2<O_2<N_2$ c) $N_2<O_2<H_2$ d) $N_2<H_2<O_2$
6	Which of the following statements is true? a) O_2 is more stable than O_2^- b) O_2^+ and O_2^- have same stability c) O_2^+ is more stable than O_2^- d) O_2 and O_2^+ have same stability
7	The number of d-electrons retained in Ni^{2+} [atomic number =28] ion is a) 6 b) 8 c) 10 d) 9
8	The irritant red haze in the traffic and congested places is due to oxides of a) Sulphur b) Phosphorus c) Carbon d) Nitrogen
9	KO_2,potassium superoxide is a) Diamagnetic ,due to absence of unpaired electrons b) Paramagnetic, due to absence of one unpaired electrons c) Diamagnetic, due to presence of paired electrons **d)** Paramagnetic, due to presence of one unpaired electron
10	Which of the elements whose atomic numbers are given below, cannot be accommodated in the present set up of the long form of periodic table? a)107 b) 108 c) 128 d) 118
11	Setting time of cement is delayed by adding calculated amount of …….
12	The alkali metal that forms hydrated salt is …….……
13	The shape of p-orbital is …….
14	C_2H_4 molecule has ……..sigma bonds and ……..……pi bonds.
15	BOD value 17ppm or higher indicates …… water.
16	Give an example of green chemistry in everyday life.

17	Write the general outer electronic configuration of f-block elements.
18	How many spectral lines will be emitted by atomic hydrogen excited to the 4^{th} energy level?
19	Give one harmful effect of global warming.
20	Axial bonds are longer than equatorial bonds in PCl_5.Why?
	SECTION-B
21	Discuss the geometry of following molecules on the basis of VSEPR theory: CH_4 , ClF_3
22	Calculate the energy per mol of a photon associated with light of wavelength 600nm. [$N=6.03x10^{23}$,$h=6.626x10^{-34}$Js,$c=3x10^8$m/s] **OR** Calculate the wavelength of radiation emitted producing a line in Lyman series, when an electron falls from fourth stationary state in hydrogen atom
23	Give reason a) Alkali metals in liquid ammonia imparts blue color b) Potassium carbonate cannot be prepared by Solvay process **OR** What happens when (write balanced chemical equations) a) Carbon dioxide is passed through ammoniacal brine solution Lithium nitrate is heated
24	a) In the building up of atoms, 4s is filled before 3d.Why? b) Electronic configuration in Chromium is [Ar] $4s^1$, $3d^5$ and not [Ar] $4s^2$, $3d^4$.Why?
25	What is diagonal relationship? List any two diagonal relationship between lithium and magnesium.
26	a) Draw the resonating structures of carbonate ion. b) Why does para- nitro phenol have a higher boiling point than ortho-nitro phenol?
27	a) Designate the orbital with following quantum numbers n=4, l=3. b) Arrange the following orbitals in the increasing order of energy: 1s, 3d, 4s, 2p. c) How many electron in an atom can have following quantum numbers: n=4, l=1, s=+ ½?
28	Give reason a) Ethyne molecule is linear b) SF_4 is see-saw shaped c) The bond in HF is polar. **OR** Write the electronic configuration of F_2 molecule on the basis of molecular orbital theory. Predict its magnetic nature and bond order.
29	a) What are isoelectronic species? Name one anion and one cation isoelectronic with argon [Ar]. b) To which group and period does an element with atomic number 22 belong?
30	Define a) BOD b) Eutrophication

	c) Green chemistry **OR** Name a) The chemical responsible for ozone depletion. b) Any two gases responsible for greenhouse effect. c) Any two gases responsible for acid rain
31	a) The radius of first orbit of hydrogen atom is $0.529A^o$.What will be the radius of the third orbit of He^{+1} ion? b) Calculate the energy of a radiation with wave number $2.086x10^6m^{-1}$
32	Give reason a) Lanthanides and actinides are placed separately in the periodic table b) Lithium differs from the rest of the members of the group c) Third period contains only 8 elements
33	Calculate the wavelength of a) an electron moving at $5.31x10^6m/s$? b) a photon with frequency $6x10^{12}s^{-1}$ [Given: velocity of light $c=3\ x10^8m/s$,mass of electron: $9.11x10^{-31}kg$]
34	a) What is the principle of flame test? b) Which alkaline earth metals do not impart color to the flame and why? c) Draw the structure of $BeCl_2$ above 1200K **OR** Complete the following reactions : i) $CaO + SiO_2 \rightarrow$ ii) $BeCl_2 + LiAlH_4 \rightarrow$ $NaNO_3$<u>heat</u>
	SECTION-D
35	Consider the following electronic configurations of the elements A,B,C,D and E A $-1s^22s^22p^63s^23p^6$ B $-1s^22s^22p^63s^23p^64s^2$ C$-1s^22s^22p^63s^1$ D $-1s^22s^22p^63s^23p^64s^23d^1$ E $-1s^22s^22p^5$ Which element has/is a) A transition metal b) Lowest first Δ_iH[ionisation enthalpy]

	c) A noble gas d) An alkaline earth metal e) The most electronegative **OR** a) Define the following terms i) Ionisation enthalpy. ii) Electronegativity b) Giving reasons, identify among i) Na and Na^+, which has higher ionisation enthalpy? I^+ and I^-, which has lesser ionic radii?
36	a) Give one difference between orbit and orbital. b) State Pauli's exclusion principle c) If the electron is to be located within 5.8A°, what will be the uncertainty in its velocity? [Given: mass of electron $9.1x10^{-31}$kg] **OR** a) Give any one limitation of Bohr's model of atom. b) What do you understand by the term degenerate orbitals? The threshold frequency for the ejection of electrons from the surface of potassium metal is $5.3 \times 10^{14}\ s^{-1}$.Will photon of a radiation having energy $3.3\ x10^{-19}$ J exhibit photoelectric effect? Justify your answer[Given: $h=6.6x10^{-34}$Js]
37	a) Differentiate between sigma and pi bonds [2 points each] b) Using suitable example, explain sp^3d^2 hybridization. c) Arrange the following hybridized orbitals in the increasing order of 's' character-sp^2,sp,sp^3 **OR** a) Define expanded octet. Give an example. b) Which is more polar and why: NH_3 or NF_3? c) Arrange the following in the increasing order of bond angle: BCl_3, H_2O, $BeCl_2$.
	End of the Question Paper