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Answers to 2017 O level Science Chemistry 5076/5078 Paper 1

Question	Answer	Explanation
1	C	20°C is higher than the melting point but lower than the boiling point.
2	D	Zn^{2+} forms a white precipitate which dissolves in excess when reacted with aqueous sodium hydroxide and aqueous ammonia. When NO_3^- is warmed with aluminum and aqueous sodium hydroxide, ammonia gas is produced.
3	A	In atom, number of protons = number of electrons. Nucleon number = number of neutrons + number of protons
4	C	Ionic compound does not conduct electricity in the solid state.
5	B	Fe^{3+} and SO_4^{2-}
6	A	$50cm^3 = 0.05dm^3$ n = c x V = 0.4 x 0.05 = 0.02mol m = n x Mr = 0.02 x 180 =3.6g
7	C	Exothermic -> increase in temperature of surroundings -> energy is released to surroundings
8	D	Fact

9	A	Calcium hydroxide is alkaline.
10	D	Barium sulphate (insoluble salt) will be produced.
11	B	Fact.
12	C	Chlorine is more reactive thane iodine.
13	D	Stainless steel is an alloy.
14	C	Since displacement reaction occurs, Y is more reactive than X. Since Y does not react with water while W does, W is more reactive than Y. Since X reacts with HCl while Z does not, X is more reactive than Z.
15	D	Fact.
16	B	Fact.
17	C	Fact.
18	C	When number of carbon atoms increase, the melting point increases due to the larger energy required to overcome the intermolecular forces of attraction. When melting point increases, flammability (tendency to catch fire) will decrease instead.
19	B	Number of carbon atoms in X = (17 – 4 – 3)/2 = 5 Number of hydrogen atoms in X = (36 – 8 – 6 – 2)/2 =10 C_5H_{10} -> Alkene (C_nH_{2n})
20	D	Ethanol burn completely to produce carbon dioxide and water, not carbon monoxide. General formula: $C_nH_{2n+1}OH$ Ethanol can be oxidized by potassium manganate (VII) to form ethanoic acid.