FBQ1: Because of the intense colouration of_____ it is very difficult to read the meniscus of the solution in burette.
Answer: KMnO4

FBQ2: The potassium permanganate solution intended for_____ must be standardised prior to use.
Answer: redox titration

FBQ3: A standard solution of Oxalic acid is a hydrated _____ that can be obtained in high purity in the laboratory.
Answer: dibasic acid

FBQ4: Oxidation-reduction reactions are reactions in which _____ are transferred from one ion to another
Answer: electrons

FBQ5: Oxidation-reduction reactions are also used in ---------- like the acid-base reactions
Answer: titrimetric analysis

FBQ6: In redox titration involving potassium permanganate, if the contents of the conical flask turn brown, it means that _____ was added.
Answer: Insufficient acid catalyst

FBQ7: The equation for the redox reaction is, X (aq) + 5C2O42-(aq) +16H+(aq)→ 2Mn2+(aq) + 10CO2(g)+8H2O(l). Identify the reactant X.
Answer: MNO-4

FBQ8: From the equation MNO-4(aq) + 5C2O42-(aq) +16H+(aq) the mole ratio between the reactant is____
Answer: 5moles

FBQ9: Potassium permanganate is a self-indicating reagent because of its different characteristic _____ in either the acidic or basic medium
Answer: Colour changes

FBQ10: Potassium permanganate can be used to estimate the _____of a substance.
Answer: percentage purity

FBQ11: IO32- + SO32+ → I +SO42- The oxidation state of oxygen in the product's equation is_____
Answer: +6

FBQ12: IO32- + SO32+ the oxidation state of oxygen in the equation is _____
Answer: +4

FBQ13: CO + H2SO4 → CO2 + SO2 + H2O The elements which undergo change in oxidation state from the reactants to the products are_____
Answer: C and S

FBQ14: Volumetric analysis involving iodine are usually referred to as _____
Answer: Iodimetry

FBQ15: In the _____, standard solutions of iodine are used to estimate directly the concentrations of some oxidizable species.
Answer: Direct method

FBQ16: In the _____ the excess iodine ion that is deliberately produced in a reaction involving say potassium iodide in an acid medium is made to react with another oxidizing agent.
Answer: indirect method

FBQ17: $2I^-(aq) \rightarrow I_2(aq) + 2e^-$. In this equation the liberated I_2 is now quantitatively determined by titration with standard _____solution acting as reducing agent according to the equation below.$2S_2O_3^{2-}(aq) + I_2(aq) \rightarrow S_4O_6^{2-}(aq) + 2I^-$
Answer: Sodium thiosulphate

FBQ18: Of all the oxidizable species available for use, iodine titration are usually used with the___
Answer: thiosulphate

FBQ19: The colour changes accompanying the varying change in oxidation states of iodine and its ion can be used to indicate the_____
Answer: end point

FBQ20: The most commonly used _____for iodine titration is starch solution.
Answer: external indicator

FBQ21: The starch solution forms a _____complex with the tri-iodide ion during the titration that is rapidly discharged at the end point.
Answer: blue black

**FBQ22: Thus using starch as indicator, the colour variations of the solution depend on _____formation of the starch with iodide ion formed in the last stage of the titration.
Answer: complex

**FBQ23: For this reason and in order to avoid complications in the end point detection, the starch indicator is added at the_____ colouration of the solution which is near the end point.
Answer: light yellow

**FBQ24: Complete the colour change in iodometry analysis. _____(initially)→
Answer: Red-brown

FBQ25: _____ colouration is observed at near end point of the iodometry titration.
Answer: Light yellow

FBQ26: Oxidation involves the----------of electrons
Answer: lost

*8FBQ27: The oxidation potentials of Na is_____
Answer: $Na^+ + e$ +2.71

FBQ28: The study of thermal changes in chemical and physical processes is known as_____
Answer: thermochemistry

FBQ29: The _____is the amount of heat released or observed for a given amount of reactants or products
Answer: heat of reaction

FBQ30: The only acid suitable for use in redox titration involving potassium permanganate is dilute_____
Answer: Sulphuric acid

FBQ31: Nitric acid would compete with the permanganate ion for the reducing agent because itself is a _____
Answer: strong oxidizing agent

FBQ32: Reduction reaction involves -------- of electrons
Answer: gain

FBQ33: Oxidation-reduction reactions involves a change in ---------- of both

substances being determined
Answer: oxidation state

FBQ34: Unlike acid-base reactions, redox procedure involves the use of----------
Answer: Catalyst or slight heat

FBQ35: When atoms of elements are in their free state their oxidation number is--------
Answer: zero

MCQ1: In preparing a standard solution, two factors must be considered, namely:
Answer: 1.The solute must be pure 2. The suitable solvent should be measure to a definite volume

MCQ2: A solution contains 1.2 Molar concentration, what volume of it must be diluted with water to give 600 mls of 0.5 Molar solution?
Answer: 25 mls

MCQ3: In a chemistry laboratory a stoke bottle of acid solution reads, “1.25 specific gravity”; what does that mean?
Answer: 1 cm3 of that solution weight 1.25 g

MCQ4: If 2 cm3 of a stoke solution contains 1 mole of an acid how would you prepare 1 molar concentration of that acid in 250 cm3 of water?
Answer: Dissolve 2 cm3 of the stoke solution in 248 cm3 of water

MCQ5: A substance which loses water of hydration upon exposure to atmosphere is called?
Answer: Efflorescence substance

MCQ6: A substance which takes in only moisture upon exposure to atmosphere is referred to as?
Answer: Deliquescent substance

MCQ7: A table of requirement for laboratory experiment contains the following except?
Answer: List of weight of each reagents

**MCQ8: Give reason why water should not be added to acid during carrying out acid-base titration?
Answer: The dissolution of acid in water is exothermic which may cause explosion

MCQ9: The concentration of pure HCl 11.7 Molar if 20 cm3 of the acid is diluted to 250 cm3 to give concentration of 0.936 mol.dm3 substitute this values on this equation; CIVI=C2V2?
Answer: 11.7 X 20 = 0.936 X 250

MCQ10: The point at which stoicheometrically equivalent quantities of substance have been brought together is known as?
Answer: Equivalence point of titration

MCQ11: Which of the following options is an indicator used for acid-base titration?
Answer: Methyl orange

MCQ12: In an acid base titration conducted by a student, the colour of the solution in the beaker changed from colourless to pink when phenolphthalein was used as an indicator, what went wrong?
Answer: The beaker was occupied by acid solution instead of base.

MCQ13: What is a PH of a solution?
Answer: It is the measure of hydrogen ions concentration in the solution

MCQ14: At neutralization point, the PH value is?
Answer: Seven

MCQ15: At complete neutralization point, the litmus paper colour turns?
Answer: Purple

MCQ16: Predict the colour of methyl orange when pH is 8?
Answer: Yellow

MCQ17: What is the colour of bromothymol when added to an acid solution?
Answer: Yellow

MCQ18: An indicator X was added to an acid solution in a beaker but no colour change was observed give the name of the indicator X?
Answer: Phenolphthalein

MCQ19: What is a strong acid?
Answer: Any acid that ionizes completely in solution

MCQ20: An example of a strong acid is?
Answer: H_2SO_4

MCQ21: What type of indicator will be suitable for use in a titration involving $H_2SO_4 + NH_3(ag)$?
Answer: Methyl orange

MCQ22: Which of these indicators will be suitable for use in a titration involving a weak acid and a strong base?
Answer: Phenolphthalein

MCQ23: What is the implication of adding a phenolphthalein as an indicator during the titration of HCl against Na_2CO_3?
Answer: The end point will appear when only half of Na_2CO_3 has been used

MCQ24: What is the importance of back titration?
Answer: To determine the concentration of a substance that is in excess after a chemical reaction.

**MCQ25: A 25 ml solution of 0.5 M NaOH is titrated until neutralized into a 50 ml sample of HCl?
Answer: 0.25 mol

MCQ26: A student used a hard tap water and performed and acid base titration. In few lines explain what would happen to his result?
Answer: the starting solution would be more alkaline therefore it would require more volume of acid than expected

MCQ27: Choose the most suitable water for use in acid base titration?
Answer: Deionised water

MCQ28: Both molarity and normality are measures of concentration. True or false?
Answer: True

MCQ29: During acid-base titration sulphuric acid would be dissociated into what ions?
Answer: $2H^+ + SO_4^-$

MCQ30: What is a titrand in titration anlysis?
Answer: Unknown concentration of an analyte

MCQ31: What is a titrant in titration analysis?
Answer: Known concentration and volume of an analyte

MCQ32: Which of these is a method of finding the equivalence point?

Answer: All of the options

MCQ33: When performing acid-base titration, one should first?
Answer: Rinse the burette twice with acid solution

MCQ34: The equation NaOH + HCl →NaCl + H2O is a ____?
Answer: Neutralization reaction

MCQ35: The following are advantages of acid base titration except?
Answer: Less accuracy and precision