



قائمة الاسئلة 2025-04-13 09:00

كيمياء تحليلية للبيولوجيين - (412203) - المستوى الثاني - تخصص علم الاحياء - كلية العلوم - الفترة الاولى - درجة الامتحان (40)

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- 1) Which one of the following statements is true for the methyl orange indicator?
  - 1) ☒ It is yellow in basic solutions and orange red in acidic solutions.
  - 2) ☐ It is blue in basic solutions and red in acidic solutions.
  - 3) ☐ It is orange in basic solutions and pink in acidic solutions.
- 2) Which one of the following solutions could NOT be used as a primary standard solution?
  - 1) ☐ Sodium chloride (NaCl)
  - 2) ☐ Potassium dichromate (K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>)
  - 3) ☒ Sodium hydroxide (NaOH)
  - 4) ☐ Anhydrous sodium carbonate (Na<sub>2</sub>CO<sub>3</sub>)
- 3) The concentration in molarity of 0.6g Al(NO<sub>3</sub>)<sub>3</sub> in 500 ml solution is: (Al=27, N=14, O=16)
  - 1) ☐ 0.002
  - 2) ☐ 0.003
  - 3) ☐ 0.004
  - 4) ☒ 0.006
- 4) The concentration of a potassium hydroxide (KOH) solution was found to be 0.14 mol/L., what is the concentration of this solution in grams/L? (K=39, O=16, H=1)
  - 1) ☐ 400 g/l
  - 2) ☐ 56.14 g/l
  - 3) ☒ 7.84 g/l
  - 4) ☐ 4 g/l
- 5) A student was asked to make up a 10% w/v solution of sodium carbonate. Which one of the following methods should have been followed?
  - 1) ☒ Dissolve 100 g of the sodium carbonate in exactly 1 Liter of water.
  - 2) ☐ Dissolve 10 g of the sodium carbonate in exactly 100 L of water.
  - 3) ☐ Dissolve 100 g of the sodium carbonate in exactly 100 mL of water.
  - 4) ☐ Dissolve 1 g of the sodium carbonate in exactly 100 mL of water.
- 6) A sample of vinegar was analysed and found to have a concentration of ethanoic acid equal to 1 mol/l. M.Wt(ethanoic acid) = 60 What will its concentration be expressed as % w/v?
  - 1) ☒ 6%
  - 2) ☐ 60%
  - 3) ☐ 61%
  - 4) ☐ 1%
  - 5) ☐ Mr(ethanoic acid) = 60
- 7) How many moles of sodium hydroxide (NaOH) are there in 250 ml of a 0.1 molar solution of sodium hydroxide?
  - 1) ☒ 0.025 mole
  - 2) ☐ 2.5 mole
  - 3) ☐ 25 mole
  - 4) ☐ 0.25 mole
- 8) the concentration of weak acid equal:
  - 1) ☐ 10-pH
  - 2) ☐ 10 pH
  - 3) ☐ [ -log[H<sup>+</sup>] ]
  - 4) ☒ [H<sup>+</sup>]<sup>2</sup> / K<sub>a</sub>
- 9) The concentration (in M) of hydroxide ions in a solution at 25.0 °C with pH = 4.282 is



- 1) - 4.28  
2) -  $5.22 \times 10^{-5}$   
3) - 9.72  
4) ☒  $1.92 \times 10^{-10}$
- 10) The mole fractions of water in 19.4 g of  $\text{H}_2\text{SO}_4$  in 0.251 L of  $\text{H}_2\text{O}$  (O=16, S=32, H=1)  
1) ☒ 0.0143  
2) - 0.986  
3) - 0.241  
4) - 0.576
- 11) 1- Which of the following aqueous solutions has the highest  $[\text{OH}^-]$ ?  
1) - a solution with a pH of 3.0  
2) - a  $1 \times 10^{-4}$  M solution of  $\text{HNO}_3$   
3) - a solution with a pOH of 12.0  
4) ☒ a  $1 \times 10^{-3}$  M solution of  $\text{NH}_4\text{OH}$
- 12) The oxidation number for Fe in  $\text{Fe}_2\text{O}_3$  is  
1) ☒ 3  
2) - -3  
3) - 6  
4) - 1
- 13) The normality of (40%,  $d = 1.36 \text{ g/mL}$ )  $\text{H}_2\text{SO}_4$  is  
1) - 13.88  
2) - 5.55  
3) ☒ 11.1  
4) - 9.56
- 14) The volume- volume percentage in which 75mL of ethanol is diluted to volume of 250mL is  
1) - 23%  
2) ☒ 30%  
3) - 40%  
4) - 45%
- 15) The molarity of 0.2 N of oxalic acid  $(\text{COOH})_2$  IS  
1) - 0.4  
2) ☒ 0.1  
3) - 0.8  
4) - 0.9
- 16) POH for 0.1 M  $\text{CH}_3\text{COOH}$  ( $K_a = 1.86 \times 10^{-5}$ ) is  
1) - 2.865  
2) - 1.11  
3) - 0.2865  
4) ☒ 11.135
- 17) from application of pH value , pH of human blood is  
1) - 6.7  
2) - 7  
3) - 7.9  
4) ☒ 7.42
- 18) ..... considered as self-indicator in redox titration  
1) - D.ph.A  
2) ☒  $\text{KMnO}_4$   
3) -  $\text{H}_2\text{C}_2\text{O}_4$   
4) -  $\text{KH}_2\text{PO}_4$



- 19) Reduction is a process which ..... Electrons
- 1) - neutralized
  - 2) ☒ + gained
  - 3) - loosed
  - 4) - transfer
- 20) ..... is a weak acid with its salt
- 1) ☒ + buffer solution
  - 2) - base
  - 3) - acid
  - 4) - weak acid
- 21) the % of 0.0045 M solution (M.Wt=178.7 g/mol is
- 1) - 8%
  - 2) ☒ + 0.08%
  - 3) - 80%
  - 4) - 0.01%
- 22) Equivalent weight for  $Mg_3(PO_4)_2$  is (Mg=24, P=31, O=16)
- 1) - 120
  - 2) - 310
  - 3) - 262
  - 4) ☒ + 43.7