

Deep Run High School

CHEMISTRY I: 1(A), 5(A), 7(A)

Name: _____

Score: / 100

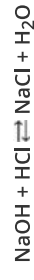
Instructions:

You will have **two attempts** to get your highest score. If you score 80% or above, you will earn 5 points extra test credit. This assignment must be completed on time in order to earn extra credit.

Question 1

/ 1

A student spilled 100 ml of 12.0 M HCl on the lab bench. How many milliliters of 3.0 M NaOH are required to neutralize the stock solution?



☐ 100

☐ 25 ml

☐ 3600 ml

☐ 400 ml

Unit 11 Test Review

Due Date: May 23, 2019

Instructor: Jennifer Krug

ID: 7571

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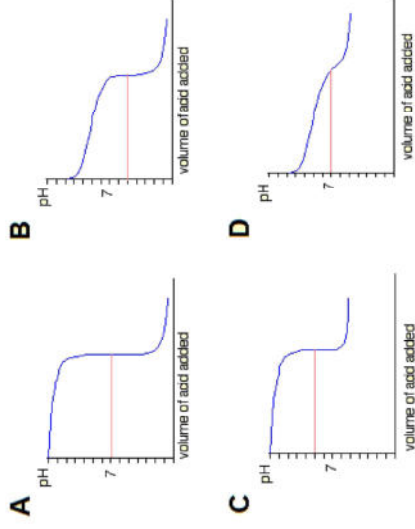
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Question 2

A solution which has a concentration that exceeds its predicted solubility at a certain temperature and pressure would be -

- ☐ an unsaturated solution
- ☐ a dilute solution
- ☐ a supersaturated solution
- ☐ a saturated solution

/1



Question 3

Which of the following is an Arrhenius base?

- ☐ NaOH
- ☐ NH₃
- ☐ NaCl
- ☐ HCl

- ☐ A
- ☐ B
- ☐ C
- ☐ D

/1

Question 4

Which of the following represents a titration curve for a weak acid and a strong base?

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Question 5

What is the concentration of acid, if 10 ml HCl is required to prepare 250 mL of a 0.10 M solution?

- ☐ .025 M
☐ 0.25 M
☐ 4.0 M
☐ 2.5 M

/1

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Question 7

According to the range of pH indicators in Table 1, which is the best indicator to use for the titration of a strong acid with a strong base?

/1

TABLE 1: COLOR CHANGES OF COMMON INDICATORS

Indicator	Color change	Transition interval
congo red	blue to red	3.0–5.0
bromthymol blue	yellow to blue	6.0–7.6
phenolphthalein	colorless to pink	8.2–10.0

/1

Question 6

Which of the following types of matter would be classified as a solution?

- ☐ salt water
☐ sodium
☐ water
☐ sodium chloride

- ☐ Congo Red
☐ Bromthymol blue
☐ Phenolphthalein
☐ None of the above

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Question 8

All acid base reactions can be classified as

- ☐ decomposition reactions
- ☐ double replacement reactions
- ☐ single replacement reactions
- ☐ neutralization reactions

/1

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Question 10

If a solution has a pOH of 11, what is its pH?

- ☐ 7
- ☐ 8
- ☐ 10
- ☐ 3

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Question 9

Which solute will be most soluble in hexane?

- ☐ boron trichloride
- ☐ ammonia
- ☐ hydrochloric acid
- ☐ sodium chloride

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Question 11

Based on the data collected in the table, which base is a strong electrolyte.

Substances	Observations
HCl	Bright light
CH ₃ OH	No light
MgCl ₂	Faint light
NaOH	Bright light
CH ₃ COOH	Faint light
CCl ₄	No light

- ☐ NaOH
☐ HCl
☐ CH₃OH
☐ CH₃COOH

Question 12

Calculate the pH of a 0.000010 M HCl solution.

- ☐ 9
☐ 1×10^{-5}
☐ 1×10^{-9}
☐ 5

Question 13

What is the molarity of an HCl solution, if 18.00 ml is neutralized when titrating 24.00 ml of 0.25 M NaOH?



- ☐ 0.33 M
☐ 2.0 M
☐ 3.0 M
☐ 0.60 M

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Question 14

How many grams of KCl are needed to prepare 500.0 ml of a 1.50 M solution?

- ☐ 133.5 g
☐ 55.91 g
☐ 41.93 g
☐ 75.00 g

/1

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Question 16

Which of the following contains a **heterogeneous** mixture?

- ☐ A balloon full of air
☐ A lava lamp
☐ A copper pipe
☐ A salt shaker

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Question 15

Which of the following is a diprotic acid?

- ☐ HNO₃
☐ H₃PO₄
☐ CH₃COOH
☐ H₂CO₃

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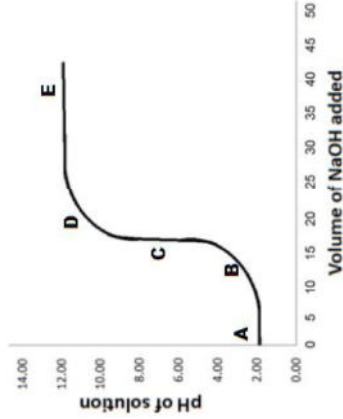
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Question 17

During an acid-base titration, the equivalency point occurs at



☐ C

☐ D

☐ E

☐ B

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Question 18

Which of the following solutions will have the greatest melting point depression?

☐ 50 grams of salt in 200 grams of water

☐ 25 grams of salt in 100 grams of water

☐ 25 grams of salt in 200 grams of water

☐ 25 grams of salt in 50 grams of water

Question 19

Classify the following substances by type of electrolyte (acid, base or salt).

☐ 1. LiOH

A. salt

☐ 2. H₂SO₄

B. base

☐ 3. KOH

C. acid

☐ 4. CaBr₂

D.

☐ 5. CH₃CH₂OH

E.

☐ 6. KCl

F.

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Question 20

How many moles of NaOH are present in 250 ml of 0.040 M solution?

- ☐ 0.625 moles
☐ 6.25 moles
☐ 0.01 moles
☐ 10.0 moles

/1

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Question 22

Which of the following compounds is the conjugate base of H_2PO_4^- ?

- ☐ HPO_4^{2-}
☐ H_3PO_4
☐ PO_4^{3-}
☐ $\text{H}_2\text{PO}_4^{+1}$

/1

Question 21

If a solution has a hydrogen ion concentration of $1.0 \times 10^{-4} \text{ M}$, what is the pH of the solution?

- ☐ 8
☐ 4
☐ 12
☐ 10

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Question 23

Which of the following is the correct dissociation constant for sodium hydroxide in water?

$\text{NaOH (s)} + \text{H}_2\text{O (l)} \rightleftharpoons \text{Na}^{+1} \text{ (aq)} + \text{OH}^{-1} \text{ (aq)}$

☐ $K_b = \frac{[\text{NaOH}][\text{Na}^{+1}]}{[\text{H}_2\text{O}][\text{OH}^{-1}]}$

☐ $K_b = \frac{[\text{NaOH}][\text{H}_2\text{O}]}{[\text{Na}^{+1}][\text{OH}^{-1}]}$

☐ $K_b = [\text{HNO}_3][\text{H}_2\text{O}]$

☐ $K_b = [\text{Na}^{+1}][\text{OH}^{-1}]$

Question 24

What is the pH of a solution, if the $[\text{H}_3\text{O}^{+}]$ is 1×10^{-9} ?

☐ 9

☐ 5

☐ 14

☐ -5

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Question 25

Which of the following shows the correct electrolytic dissociation for potassium hydroxide in water?

☐ $2 \text{ KOH (s)} \rightleftharpoons 2 \text{ K}^{+1} \text{ (aq)} + \text{O}_2 \text{ (g)} + \text{H}_2 \text{ (g)}$

☐ $\text{KOH (s)} \rightleftharpoons \text{K}^{+1} \text{ (aq)} + \text{OH}^{-1} \text{ (aq)}$

☐ $\text{K(OH)}_2 \text{ (aq)} \rightleftharpoons \text{K}^{+1} \text{ (aq)} + \text{H}_3\text{O}^{+1} \text{ (aq)}$

☐ $2 \text{ KOH (aq)} \rightleftharpoons 2 \text{ K}^{+1} \text{ (aq)} + \text{H}_2\text{O (l)}$

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