



ABUNE GORGORIOS SCHOOL ABUARIE BRANCH

2012E.C SECOND SEMESTER CHEMISTRY MID EXAM

FOR GRADE 11

Time Allowed : 40minutes

Name_____Grade and section_____R.No_____

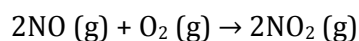
INSTRUCTION –ONE : CHOOSE THE CORRECT ANSWER AND WRITE THE LETTER OF YOUR CHOICE ON THE ANSWER SHEET (15 points)

1. Which of the following molecules is not paramagnetic?
A. O_2^+ B. O_2 C. O_2^- D. O_2^{2-}
2. Which of the following molecules has the shortest bond length?
A. O_2 B. Cl_2 C. N_2 D. Br_2
3. Which molecule has the largest bond angle?
A. CF_4 B. NF_3 C. BF_3 D. OF_2
4. Which one of the following is NOT true of metallic bonding?
A. It gives rise to excellent electrical conductivity
B. Electrons are free to move throughout the structure
C. The strength of metallic bonds increases down a group
D. The strength of metallic bonding affects the boiling points of metals
5. According to the molecular orbital theory, which one of the following is paramagnetic?
A. F_2 B. H_2 C. NO^+ D. NO
6. Which of the following crystals possess high electrical and thermal conductivities?
A. Ionic crystals C. Molecular crystals
B. Metallic crystals D. Covalent network crystals
7. Which one of the following molecules/molecular ions is paramagnetic according to the molecular orbital theory?
A. O_2^{2-} B. O_2 C. F_2 D. O_2^{2+}

8. Two reactant particles collide with proper orientation. The collision will be effective if the particles have
- A. High activation energy C. High ionization energy
B. Sufficient kinetic energy D. Sufficient potential energy
9. Based on the energy values given for the forward reaction, which of the following reaction would be fastest in the reverse direction?
- A. $E_a=30\text{KJ/mol}; \Delta E=-10\text{KJ/mol}$ C. $E_a=45\text{KJ/mol}; \Delta E=+15\text{KJ/mol}$
B. $E_a=60\text{KJ/mol}; \Delta E=+10\text{KJ/mol}$ D. $E_a=20\text{KJ/mol}; \Delta E=-20\text{KJ/mol}$
10. Which of the following increases when the concentration of reactant molecules increases?
- A. The frequency of molecular collisions C. The rate constant
B. The average kinetic energy D. The activation energy
11. How does a catalyst increase the rate of a chemical reaction?
- A. By shifting the equilibrium to the right
B. By shifting the equilibrium to the left
C. By lowering the activation energy
D. By increasing the activation energy
12. For the reaction $2A + B \rightarrow 2C$, the following data were obtained:

Experiment	Initial conc. of A mol/l	Initial conc. of B mol/l	Initial rate (mol/l sec)
1.	0.5	0.5	10
2.	0.5	1.0	20
3.	0.5	1.5	30
4.	1.0	0.5	40

- A. $r=K[A]^2$ B. $r=K[A]^2[B]$ C. $r=K[A][B]$ D. $r=K[A]^2[B][C]$
13. Which of the following rate law is third order overall?
- A. $\text{Rate}=K[A]^1[B]^3$ B. $\text{Rate}=K[A][B]^2$ C. $\text{Rate}=K[A]^3[B]^3$ D. $\text{Rate}=K[A]^5[B]^2$
14. For the reaction,



The following data were obtained:

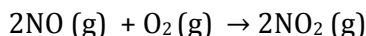
$[\text{NO}]_0 \text{ (M):}$	0.10	0.10	0.40
$[\text{O}_2]_0 \text{ (M):}$	0.10	0.20	0.20

Rate(M/s): 2.5×10^{-4} 5.0×10^{-4} 8.0×10^{-3}

What is the rate for the reaction?

- A. Rate = $K[\text{NO}][\text{O}_2]$ C. Rate = $K[\text{NO}]^2[\text{O}_2]$
B. Rate = $K[\text{NO}][\text{O}_2]$ D. Rate = $K[\text{NO}]^2[\text{O}_2]$

15. Consider the reaction in which nitric oxide is oxidized to nitrogen dioxide:



For which the rate law is rate = $K[\text{NO}]^2[\text{O}_2]$. If this reaction takes place in as sealed vessel and the partial pressure of nitric oxide is doubled, what effect would this have on the rate of reaction?

- A. The reaction rate would increase by a factor of four
B. The reaction rate would increase by a factor of three
C. The reaction rate would increase by a factor of eight
D. The reaction rate would increase by a factor of two

INSTRUCTION- TWO: Answer the following questions as requested(2 points)

16. Write the factors that affect the rate of a chemical reaction

- A. _____
B. _____
C. _____
D. _____
E. _____

17. Write the integrated rate law equation for:

- a. Zero order reaction _____
b. First order reaction _____
c. Second order reaction _____

INSTRUCTION-THREE: Define the following terms briefly(3 points)

18. Phase(P) _____

19. Component(C) _____

20. Degree of freedom(F) _____

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