

E-JUST Entrance Exam model

Subject: Chemistry

Time: 20 minutes

Student Name:.....

Application ID No:.....

Undergraduate Entrance Examination Instructions

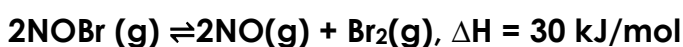
1. Examinees will be provided with question booklet and answer sheet.
2. Questions are on both the front and back of the page.
3. Question booklet contains scratch papers for use in solving exams.
4. Answer ALL questions to the best of your abilities. Be sure to write legibly and choose your answers clearly using HB or B pencil, not pen.
5. Question booklet will be collected back.

Choose the correct answer:

1. Which of the following solutions when added to 1 L of water will decrease its pH?

- A. 0.1 M HCl
- B. 0.1 M NaCl
- C. 0.1 M NaOH
- D. 0.1 M NH₄OH

2. For the following reaction at equilibrium, which gives a change that will shift the position of equilibrium to favor formation of more products?



- A. Remove NOBr.
- B. Add more NO.
- C. Remove Br₂.
- D. Lower the temperature.

3. A catalyst.....

- A. changes the equilibrium concentration of the products
- B. decreases the rate for a reaction
- C. increases the reaction rate.
- D. increases the activation energy for a reaction.

4. The oxidation state of Fe in [Fe(CN)₆]³⁻ is:

- A. +2
- B. +3
- C. +4
- D. +6

5. All of the following molecules are polar except

- A. CH₃OH
- B. H₂S
- C. HCl
- D. C₆H₆

6. The solubility of gases in water with increasing the temperature.

- A. increase
- B. decrease
- C. remain the same
- D. stop dissolving

7. The rate of a reaction depends on:

- A. Concentration
- B. Temperature
- C. Catalyst
- D. All of the above

8. The Daniel cell consists of:

- A. Zn/Zn²⁺ and Cu/Cu²⁺ electrodes
- B. Na/Na⁺ and Cl/Cl⁻ electrodes
- C. H₂/H⁺ and O₂/O²⁻ electrodes
- D. Ag/Ag⁺ and Au/Au³⁺ electrodes

9. Which of the following is a buffer solution?

- A. HCl + NaOH
- B. CH₃COOH + CH₃COONa
- C. NaOH + H₂SO₄
- D. NaCl + H₂O

10. What volume of 10 M HNO₃ must be added to enough water to prepare 5 liters of 4 M HNO₃?

- A. 20 Liter
- B. 8 Liter
- C. 2 Liter
- D. 0.2 Liter

11. In which of the following gaseous equilibria, the equilibrium will shift to the right if total pressure is increased?

- A. N₂ + 3H₂ ⇌ 2NH₃
- B. PCl₅ ⇌ PCl₃ + Cl₂
- C. H₂ + Cl₂ ⇌ 2HCl
- D. N₂O₄ ⇌ 2NO₂

12. Which molecule contains a triple bond?

- A. N₂
- B. O₂
- C. H₂O
- D. CO₂

13. Rusting is when substances react slowly with

- A. Hydrogen.
- B. Nitrogen.
- C. Oxygen.
- D. Helium.

14. The Formula of $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ represents.....

- A. Acetone
- B. Propanal
- C. Propanol
- D. Butanol

15. The correct name for $\text{CH}_2=\text{CHCH}_2\text{CH}_2\text{CH}_3$ is

- A. 1-pentene
- B. pent-1-yne
- C. pentanes
- D. 4-pentene

16. All the four quantum numbers of two electrons in an atom are not the same. This is known as

- A. Hund's rule
- B. Exclusion of Principle of Pauli
- C. Uncertainty Principle of Heisenberg
- D. Avogadro's number

17. Electron configuration $[\text{Ne}]3s^23p^5$ belongs to:

- A. Chlorine
- B. Sulfur
- C. Phosphorus
- D. Argon

18. Which of the following represents the electronic configuration of an oxygen atom?

- A. $1s^2 2s^2 2p^6$
- B. $1s^2 2s^2 2p^4$
- C. $1s^2 2s^2 2p^3$
- D. $1s^2 2s^2 2p^5$

19. Which of the following is polysaccharide?

- A. Glucose
- B. Sucrose
- C. Cellulose
- D. Fructose

20. Markownikoff's rule is applied to predict the major product of the reaction of HBr with all the following, except.....

- A. Propene
- B. 1-Butene
- C. 2-Butene
- D. 2-Methylpropene

(Good luck)