

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. The process of depositing a layer of zinc on iron to prevent rusting is called:

- A. Galvanization
- B. Electronplating
- C. Corrosion
- D. Anodizing

2. Which of the following is the molecular formula of ethane?

- A. CH₄
- B. C₂H₄
- C. C₂H₆
- D. C₃H₆

3. Which of the following is a diatomic molecule?

- A. Helium
- B. Oxygen
- C. Carbon
- D. Neon

4. Which of the following gases is produced by the reaction of zinc with dilute sulfuric acid?

- A. Oxygen
- B. Carbon dioxide
- C. Hydrogen
- D. Nitrogen

5. The solubility of a gas in water increases with

- A. Increasing temperature
- B. Decreasing temperature
- C. Increasing pressure
- D. Decreasing pressure

6. Which gases are required to produce ammonia via the Haber process?

- A. Nitrogen
- B. Hydrogen
- C. Carbon dioxide
- D. Both A and B

7. Which of the following represents the electronic configuration of a noble gas?

- A. $1S^2 2S^2 2P^3$
- B. $1S^2 2S^2 2P^6$
- C. $1S^2 2S^2 2P^4$
- D. $1S^2 2S^2 2P^1$

8. Which element is used as a semiconductor in electronic devices?

- A. Iron
- B. Copper
- C. Silicon
- D. Silver

9. Which of the following statements concerning HCl is not correct?

- A. It is a strong acid in water.
- B. The oxidation state of chlorine is -1 .
- C. It is a stronger acid than HF.
- D. The bond between hydrogen and chlorine is primarily ionic.

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

- A. $C_2H_5CH=CH_2$
- B. $CH_2=CH-CH_3$
- C. $CH_3CH=CHCH_3$
- D. $C_2H_5CH=C(CH_3)_2$

11. Which gas diffuses fastest?

- A. Oxygen
- B. Hydrogen
- C. Nitrogen
- D. Carbon dioxide

12. The correct name for $CH_2=CHCH_2CH_2CH_3$ is

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

13. Every orbital in a sublevel is singly occupied before any orbital is doubly occupied. This is known as

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

14. Isomers are compounds that have

- A) Different molecular formula, different structures
- B) Different molecular formula, same structures
- C) Same molecular formula, same structures
- D) Same molecular formula, different structures

15. A solution of silver nitrate is mixed with a solution of potassium fluoride. If a precipitate forms, the precipitate is:

- A. Silver fluoride
- B. Potassium chloride
- C. Potassium fluorite
- D. Nitric fluoride

16. Molarity is defined as

- A. Number of moles of solute per liter of solution
- B. Number of moles of solute in one kilogram of solute
- C. Kilogram of solute moles in one mole of solvent.
- D. Kilogram of solvent moles in one mole of solute.

17. Which of the following compounds includes the triplet bond?

- A. C₃H₈
- B. C₂H₂
- C. C₅H₁₀
- D. C₅H₁₂

18. Which reaction below is not an oxidation–reduction reaction?

- A. $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$
- B. $\text{Ba}(\text{NO}_3)_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaNO}_3$
- C. $\text{I}_2 + 2\text{Na}_2\text{S}_2\text{O}_3 \rightarrow 2\text{NaI} + \text{Na}_2\text{S}_4\text{O}_6$
- D. $\text{CH}_3\text{CH}_2\text{OH} + \text{O}_2 \rightarrow \text{CH}_3\text{COOH} + \text{H}_2\text{O}$

19. The nucleus of an atom consists of

- A. electrons and neutrons
- B. electrons and protons
- C. protons and neutrons
- D. electrons, neutrons, and protons

Q5. Which state of matter has the highest kinetic energy?

- A. Solid state
- B. Liquid state
- C. Gases state
- D. None of the above

(Good luck)