

MODEL PAPER

Chemistry Paper-XI

1۔ ہر سوال کے سامنے چار دائرے دیئے گئے ہیں، صرف صحیح جواب والا دائرہ بھریں۔

2۔ دائروں کو شیڈ (بھرنے) کے لیے نیلے یا کالے رنگ کا مارکر استعمال کریں۔

3۔ جواب میں ایک سے زائد دائرے بھرنے سے جواب غلط تصور ہو گا۔

Time allowed: 20 Minutes

SECTION-A

Marks: 18

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|--|----------------------------------|---|---|---|
| 1. The energy associated with quantum of radiations is: | ☐ $h\nu$ | ☐ $\frac{nh}{2\pi}$ | ☐ $2h\nu$ | ☐ $\frac{1}{2}h\nu$ |
| 2. Bohr's theory cannot be applied on: | ☐ H | ☐ H^{+1} | ☐ He^{+1} | ☐ Li^{+2} |
| 3. Which of the following sub-shell do not exist? | ☐ 1p | ☐ 5d | ☐ 6f | ☐ 1s |
| 4. The head-on overlap of p-orbitals of two atoms give rise to bond called: | ☐ Sigma bond | ☐ pi bond | ☐ ionic bond | ☐ covalent bond |
| 5. Which one of the following compounds has the highest ionic characters? | ☐ HF | ☐ HCl | ☐ HBr | ☐ HI |
| 6. The bond order in O_2 molecule is: | ☐ Zero | ☐ 1 | ☐ 2 | ☐ 3 |
| 7. The spreading of perfume or scent in air is due to: | ☐ Diffusion | ☐ Effusion | ☐ Attraction with air | ☐ Low density |
| 8. At the same temperature and pressure which of the following gases has the greatest density. | ☐ CO_2 | ☐ SO_2 | ☐ Cl_2 | ☐ H_2O |
| 9. Which one of the following has weakest London forces? | ☐ F_2 | ☐ Cl_2 | ☐ Br_2 | ☐ I_2 |
| 10. The parameters of unit cell is: | ☐ 4 | ☐ 5 | ☐ 6 | ☐ 7 |
| 11. In solid state, the crystals which are good conductors of heat and electricity are: | ☐ Covalent | ☐ Ionic | ☐ Molecular | ☐ Metallic |
| 12. In which of the following values of "KC" the reaction goes to completion in the forward direction? | ☐ 10^2 | ☐ 10^{30} | ☐ 10^{-30} | ☐ 1 |
| 13. Chloride ion $[Cl^-]$ is the conjugate base of: | ☐ $AlCl_3$ | ☐ NaCl | ☐ HCl | ☐ KCl |
| 14. pH of an aqueous solution is 9, its pOH is: | ☐ 11 | ☐ 9 | ☐ 7 | ☐ 5 |
| 15. 10^{-3} moles of HNO_3 is dissolved / dm^3 , its pH is: | ☐ -3 | ☐ 5 | ☐ 3 | ☐ 1 |
| 16. In ice cream, sugar is: | ☐ Solute | ☐ Mixture | ☐ Solvent | ☐ None |
| 17. The molarity of pure water in itself is: | ☐ 18 | ☐ 50 | ☐ 59.5 | ☐ 55.6 |
| 18. ΔH per mol is expressed in the units of: | ☐ KJ | ☐ F° | ☐ C° | ☐ K |

MODEL PAPER
Chemistry (New)
Inter Part-I
(Fresh/Reappear)

Note: Time allowed to Section – B and Section – C is 2 hours and 40 minutes.

Marks: 40

SECTION – B

Q-II: Answer any TEN parts. Each part carries FOUR marks.

1. Why the actual yield is usually less than theoretical yield of a reaction?
2. Name any four properties of cathode rays.
3. Write down defects of Bohr's atomic model.
4. Differentiate between atomic and molecular orbitals.
5. Why do you think that lighter gases can diffuse more rapidly than heavier ones?
6. Give the reason that why HF is liquid at ordinary temperature while HCl is a gas.
7. Justify the statement earthenware vessels keep water cool even in hot summer day.
8. Why water droplet is spherical?
9. Differentiate between crystalline and amorphous solids.
10. Differentiate between polymorphism and isomorphism.
11. The ionization of calcium oxalate is suppressed by adding CaCl_2 to it why?
12. Explain that why the sum of pK_a and pK_b is always 14?
13. Name the four factors that increase the rate of reaction.
14. Prove mathematically that sum of the mole fractions of all the components of a solution is equal to one.

SECTION – C

Marks: 27

Note: Attempt any THREE questions. All questions carry equal marks. Draw neat and labeled diagrams where necessary.

Q-III (a) Explain mole and Avogadro's number.

(b) Calculate the mass of Mg-metal required to consume 2560 grams of CO_2 in the reaction. Atomic masses [$\text{C}=12$, $\text{Mg}=24$, $\text{O}=16$]

Q-IV (a) Write down the main points of Bohr's atomic model.

(b) Calculate the wavelength of an electron when it moves with the velocity of light.

Q-V (a) Define hybridization. Explain the basic concept and significance of hybridization.

(b) Can you give the reason that why O_2 molecule is paramagnetic?

Q-VI (a) State and explain Dalton's law of partial pressure.

(b) High pressure and low temperature make the gas non-ideal?