

TIME: 3 HOURS

SUBJECT:- CHEMISTRY - A

MARKS. - 85
 PASS MARKS - 28

Gp: L

NOTE: Write same question number and its part number on answer book as given in the question paper.

SECTION-A (18x1=18) MARKS

CHEMISTRY

Note: Attempt all parts in this section.

Q.1(a). Choose the correct answer.

- The % age of Hydrogen in H₂O is a: 11% b: 12% c: 13% d: 14%
- Carbon have isotopes a: 2 b: 3 c: 5 d: 4
- The number of Neutrons present in K³⁹₁₉ is a: 20 b: 18 c: 19 d: 39
- Protons discovered by a: Chad wick b: Thomson c: Crooks d: Gold Stein
- The number of sigma bonds in N₂ is a: 1 b: 2 c: 3 d: All of them
- Molecules having Four : bond Pairs gives geomatry a: Tetrahedral b: Trigonal c: Triangular d: None of these
- The instrument used to measure the atmospheric pressure a: Thermometer b: Monometer c: Berometer d: Voltmeter
- At Mt. Everest, the atmospheric pressure is a: 270 torr b: 250 torr c: 260 torr d: 280 torr
- Surface tension is measured by a: stalagmometer b: thermomoneter c: viscometer d: manometer
- Solids are made up of a: atoms b: ions c: molecules d: all of them
- The unit of equalilibrium constant K_c for the reaction N₂ + 3H₂ ⇌ 2NH₃ a: dm⁺⁶ b: mole².dm⁻⁶ c: mole dm⁻³ d: No unit
- Molarity of pure H₂O is a: 1 b: 1.8 c: 55.5 d: 18

(b). Fill in the blanks with suitable words given in bracket.

- Actual yield is always ----- than Theoretical yield (Less / more)
- Greater the value of principal Quantum number ----- will be the size of an atom. (Greater / less)
- M.O.T describe the ----- (bond order / shape)
- Plasma state is a ----- state. (ionized / liquid)
- Ice occupied 10% ----- space than water. (more / less)
- Sugar crystallizes in ----- shape. (cubic / tetragonal)

SECTION-B (13x3=39) MARKS

Q.2. Attempt any thirteen questions. Each question carry equal marks.

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| <ol style="list-style-type: none"> Distinguish between actual and theoretical yield. Calculate atoms in 0.25 mole of NaOH. How did Rutherford model proved the existence of nucleuos of the atom? Write down electronic configuration of Si, C and V. Atomic number is 14, 6 and 23 respectively. What is bond order? Calcualte the bond order of H₂. Why Helium have no bond? Prove by the help of M.O.T diagram. Why Hydrogen and Oxygen have different velocities at same temperature. Why gases deviate from ideal behavior at high pressure and low temperature. | <ol style="list-style-type: none"> Why surface tension change with temperature? Why evaporation take place at all temperature? Define amoo-phous, isomorphasim and Poly morphism. Why solid have definate volume and shape? The synthesis of NH₃ is an exothermic reaction. It should favoured at low temperature but the optimum temperature is 400°. Why? React BeO with NaOH and H₂SO₄. Name the factors which effect the reaction rate. When salt is added in liquid, what will be the effect on freezing point of the liquid? Calculate the oxidation number of Cr in K₂CrO₄. K: +1 O: -2. |
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SECTION-C (4x7=28) MARKS

Attempt any four question. Each question carry 07 marks. Draw diagram where necessary.

- a). Write the Postulates of Bohr's atomic model. (04)
 b). How many atoms are present in 3.5 mole of sodium? (03)
- a). Write difference between Sigma and Pi bonds. (04)
 b). Calculate the bond order of H₂. (03)
- a). Prove volume is directly proportional to temperature at constant pressure. (04)
 b). A gas has volume of 5.0 litre at temperature of 100°C. What will be the volume if temperature is decrease at 50°C, at constant pressure. (03)
- a). Define viscosity. How it measured? (04)
 b). ~~Why solid have definate volume and shape? (03)~~
- a). Explain the behaviour of NaNO₃ salt in water. (04)
 b). What does it means when (i): Q_c > K_c (ii): Q_c < K_c (iii): Q_c = K_c (03)
- a). What kind of information you get from rate determing step? (04)
 b). Calculate the molarity of solution when 4.5 litre of contain 4 mole of ethyl alcohol. (03)
- Explain Hess's law of constant Heat of summation with a suitable example. (07)