BR- 2195

(ಸಾ.ಶ.ರಾ.-2018)

FIRST PUC ANNUAL EXAMINATION – 2018

Time: 3-15 hours
No.of Pages: 02

CHEMISTRY (34)

Max Marks: 70
Total No.of Ques.: 37

General Instructions:
i] The question paper has four parts A, B, C, and D. All the parts are compulsory.
ii] Write balanced chemical equations and draw labelled diagrams wherever necessary.
iii] Use log tables and simple calculators if necessary. (Use of scientific calculators is not allowed)

PART-A

I **Answer All the following questions in one word or in a sentence. Each question carries one mark.** **10x1=10**

1) Write the relation between ^0C and Kelvin (K)
2) Write ideal gas equation for 'n' moles of the gas.
3) What is hydronium ion?
4) State modern periodic law.
5) Define the term oxidation .
6) Which alkali metal is strongest reducing agent?
7) Write the general valence shell electronic configuration of p-block elements .
8) Write one use of diamond .
9) Give the IUPAC name of CH_3-CH_2-CH-OH-CH_3
10) Write the general formula for alkenes.

PART-B

II **Answer any FIVE of the following questions, Each question carries 2 marks . 5x2=10**

11) What is heterogeneous mixture? Give one example .
12) Calculate the value of R in S.I. unit for one mole of a gas.
(Given P= 10^5 N/m^2 V=0.0227098m^3, T= 273. 15K. n = 1 mole .
13) Write the electronic configuration of Lithium (Li_2) molecule .
What is its bond order?
14) Write any two biological importance of Magnesium .
15) What are Zeolites? Give one use of Zeolite .
16) Explain the preparation of alkenes from vicinal dihalides with an example .
17) Explain sulphonation of benzene with reaction.
18) What is green chemistry? Write one importance of green chemistry.

PART-C

III **Answer any FIVE of the following questions. Each question carries 3 marks . 5x3=15**

19) Define ionisation enthalpy. How does it varies along a period and down the group in the periodic table .
20) Give any three main postulates of valence bond theory (VBT).
21) Write the Lewis dot symbols for
(i) H_2O (ii) CCl_4 (iii) H_2
22) Give the geometrical shapes of the following molecules based on VSEPR theory . (i) $BeCl_2$ (ii) BF_3 (iii) SF_6.
23) Balance the redox reaction by Half reaction method.

$$Fe^{2+}{}_{(aq)} + Cr_2O_7^{2-}{}_{(aq)} \rightarrow Fe^{3+}{}_{(aq)} + Cr^{3+}{}_{(aq)} \quad \text{(acid medium)}$$

24) a] What is water gas?
b] How does dihydrogen reacts with halogens like (i) chlorine and (ii) fluorine
25) Mention any three diagonal relationship similarities between Beryllium and Aluminium.
26) Explain the structure of Diborane .

P.T.O.

PART-D

IV Answer any FIVE of the following questions.Each question carries 5 marks. **5x5=25**

27) a]A compound contains 4.07 % hydrogen, 24.47% carbon and 71.65% chlorine . Its molecular mass is 98.96g. Calculate its empirical formula . 3
b] State gay Lusaacc's law of gaseous valumes . 2

28) a] Give any three postulates of Bohr's theory of atomic model.
b] State Heisenberg's uncertainity principle . Give its mathematical expression

29) a]Write Rydberg's equation and explain the terms . 2
b] Explain line spectrum of hydrogen . 3

30) a] Write any three postulates of Kinetic theory of gases. 3
b] Write Vander Waal's equation and explain the terms . 2

31) a] Derive an expression for the mechanical work done in an isothermal reversible expansion of an ideal gas. 3
b] What is intensive property? Give one example . 2

32) a] Define standard enthalpy of reaction. 2
b] What is lattice enthalpy? How do you calculate the lattice enthalpy of sodium chloride by using Born-Haber's cycle? 3

33) a] State Le chatelier's principle. 2
b] Describe the experimental study of the effect of concentration on the equilibrium. $Fe^{3+} + SCN^{-} \rightleftharpoons [Fe(SCN)]^{2+}$. 3

34) a] Write the expression for the equillibrium constant (Kc) for the following reactions .
(i) $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$
(ii) $4NH_3(g) + 5O_2(g) \rightleftharpoons 4NO(g) + 6H_2O(g)$ 3
b] (i) What is Arrhenius acid?
(ii) The concentration of hydrogen ion in a sample of soft drink is 3.8×10^{-3}M What is its pH value? 2

V Answer any TWO of the following questions.Each question carries 5 marks. **2x5=10**

35) a] What is functional isomerism ? Give one example . 2
b] (i) Write the Resonance structure of Benzene. 2
(ii) Write one example for an electrophile . 1

36) a] Give any two differences between Inductive effect and Electromeric effect. 2
b]Describe the estimation of nitrogen by Dumas method . 3

37) a] Describe the preparation of alkenes by Kolbe's electrolytic method .. 2
b] Explain the free radical mechanism of chlorintion of methane . 3