

INTERMEDIATE PART-I (11th CLASS)

CHEMISTRY PAPER-I

TIME ALLOWED: 3.10 Hours

SUBJECTIVE

MAXIMUM MARKS: 83

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

SECTION-I

2. Attempt any eight parts.

8 × 2 = 16

- (i) 23g of Sodium and 238g of Uranium have equal number of atoms in them. Justify the statement.
- (ii) N_2 and CO have the same number of electrons, Protons and Neutrons. Justify with reason.
- (iii) Define Cation. How is it formed?
- (iv) Write the names of various steps used in crystallization process of a crude substance.
- (v) Which solvents are mostly used in Crystallization?
- (vi) Dalton's Law of Partial Pressure is only obeyed by those gases which do not have attractive forces among their molecules. Explain it.
- (vii) How diffusion is different from Effusion?
- (viii) Charles Law is not obeyed when the temperature is measured in Celsius scale. Justify it.
- (ix) One feels sense of cooling under the fan after bath. Justify it.
- (x) Sodium is softer than Copper but both are very good conductors of electricity. Justify with reason.
- (xi) Ionic Crystals do not conduct electricity in the solid state. Justify with reason.
- (xii) Amorphous solids like glass is also called super cooled liquids. Justify with reason.

3. Attempt any eight parts.

8 × 2 = 16

- (i) Give reason for the production of Positive Rays.
- (ii) Give electronic configuration of $_{57}La$.
- (iii) State Moseley Law and give its importance.
- (iv) What is the origin of Line Spectrum?
- (v) What are the causes of Chemical Combination?
- (vi) Why 2nd ionization energy is greater than 1st ionization energy?
- (vii) Bond distance is the compromise distance between two atoms. Justify with reason.
- (viii) Why dipole moment of Methane is Zero?
- (ix) Define system and state function.
- (x) Why heat of neutralization of strong acid with a strong base is almost the same?
- (xi) What are Buffer Solutions? Why do we need them in daily life?
- (xii) Derive K_c for the reaction between Organic Acid and Alcohol.

4. Attempt any six parts.

6 × 2 = 12

- (i) Why freezing points are depressed due to presence of solutes?
- (ii) Relative lowering of vapour pressure is independent of the temperature. Given reason.
- (iii) Compare Molar and Molal solution.
- (iv) Find Oxidation number of the element under lined (i) $Cr_2(\underline{S}O_4)_3$ (ii) $Na_3\underline{P}O_4$
- (v) Balance Ionic Equation by Ion Electron Method. $Cr_2O_7^{-2} + Fe^{+2} \longrightarrow Cr^{+2} + Fe^{+3}$
- (vi) Why a salt bridge maintains the electrical neutrality in the cell?
- (vii) Differentiate between Rate and Rate Constant of Reaction.
- (viii) What is Chemical Kinetics?
- (ix) Why the Radioactive Decay is always a first order reaction?

P.T.O

SECTION-II**NOTE: - Attempt any three questions of the following:-**

- 5.(a) Ethylene Glycol has 38.7% Carbon, 9.7% Hydrogen and 51.6% Oxygen. Its Molar Mass is 62.1 g Mol^{-1} . Determine its empirical formula. 4
- (b) Define Crystalline Solids, Amorphous Solids, Unit Cell and Crystal Lattice. 4
- 6.(a) Write four fundamental postulates of Kinetic Molecular Theory of gases. 4
- (b) Explain J.J Thomson's experiment for the measurement of $\frac{e}{m}$ value of electron. 4
- 7.(a) Acetic Acid is weak acid with $K_a = 1.85 \times 10^{-5}$. Calculate % ionization of acid in 0.1 M of its aqueous solution. How many molecules of Acetic Acid are ionized out of 1000 molecules? 3 + 1
- (b) Describe how Hess's Law helps to find out heat of formation of CH_4 gas, knowing the heats of combustions of $\text{H}_{2(g)}$, $\text{C}_{(s)}$ and $\text{CH}_{4(g)}$ to be $x, y, z \text{ kJ/mole}$ respectively. 4
- 8.(a) What is Ionization Energy? Give factors upon which Ionization Energy depends. How Ionization Energy varies along periods and groups. 1 + 1 + 2
- (b) What is Standard Hydrogen Electrode? Give its construction and use. 4
- 9.(a) Explain three statements of Raoult's Law when solute is non-volatile and non-electrolyte. 1 + 1 + 2
- (b) Describe Energy of Activation for Exothermic and Endothermic Reactions. 2 + 2

SECTION-III (PRACTICAL PART)

10. **NOTE:-** (i) Attempt any three parts. (3 x 5 = 15)
- (ii) Write down material required, diagram and procedure for part A & B. (1 + 1 + 3) = 5
- (iii) Write down standard solution, chemical equation with mole ratio, indicator with end point, procedure and supposed readings with calculations for part C, D & E. (1 + 1 + 1 + 1 + 1) = 5
- (A) Prepare Pure Sample of Benzoic Acid by Crystallization method.
- (B) Separate the mixture of Lead and Cadmium ions by paper Chromatography.
- (C) The given solution contains 6.0 grams of Caustic Soda dissolved per dm^3 . Find out the %age impurity of the sample.
- (D) Find out the number of molecules of water of crystallization in the given sample of Mohr's salt of which 39.2g have been dissolved per dm^3 .
- (E) 15.8 grams of Alkali metal Thiosulphate $\text{M}_2\text{S}_2\text{O}_3$ is dissolved per dm^3 . Calculate the atomic weight of metal M by Volumetric Method.

CHEMISTRY PAPER-I

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MAXIMUM MARKS: 17

OBJECTIVE

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Q.No.1

- (1) The mass of one mole of electrons is:- (A) 1.008 mg (B) 0.55 mg (C) 0.184 mg (D) 1.673 mg
- (2) The number of moles of CO_2 which contain 8.0g of Oxygen is:-
(A) 0.25 (B) 0.50 (C) 1.0 (D) 1.50
- (3) The comparative rates at which the solutes move in paper chromatography, depend on:-
(A) The size of paper (B) R_f values of solutes (C) Temperature of the experiment
(D) Size of the chromatographic tank used
- (4) The molar volume of CO_2 is maximum at:-
(A) STP (B) $127^\circ C$ and 1 atm (C) $0^\circ C$ and 2 atm (D) $273^\circ C$ and 2 atm
- (5) The deviation of a gas from ideal behaviour is maximum at:- (A) $-10^\circ C$ and 5.0 atm
(B) $-10^\circ C$ and 2.0 atm (C) $100^\circ C$ and 2.0 atm (D) $0^\circ C$ and 2.0 atm
- (6) Water can be boiled at $25^\circ C$, when external pressure is:-
(A) 23.7 torr (B) 1489 torr (C) 760 torr (D) 100 torr
- (7) Amorphous solids:- (A) Have sharp m.pt (B) Have perfect arrangement of atoms
(C) Can possess small regions of orderly arrangement of atoms
(D) Undergo clean cleavage when cut with knife
- (8) Quantum number values for $2p$ orbitals are:-
(A) $n = 2, \ell = 1$ (B) $n = 1, \ell = 2$ (C) $n = 1, \ell = 0$ (D) $n = 2, \ell = 0$
- (9) Orbitals having same energy are called:-
(A) Hybrid Orbitals (B) Valence Orbitals (C) d -Orbitals (D) Degenerate Orbitals
- (10) _____ molecule has zero bond order according to MOT.
(A) He_2 (B) H_2 (C) O_2 (D) N_2
- (11) For SP^2 - hybrid orbitals, bond angle is:- (A) 120° (B) 180° (C) 109.5° (D) 107.5°
- (12) For the reaction: $NaOH + HCl \rightarrow NaCl + H_2O$ the change in enthalpy is called:-
(A) Heat of reaction (B) Heat of formation (C) Heat of combustion (D) Heat of neutralization
- (13) For _____ system does the equilibrium constant, K_c has no units.
(A) $N_2 + 3H_2 \rightleftharpoons 2NH_3$ (B) $H_2 + I_2 \rightleftharpoons 2HI$
(C) $2NO_2 \rightleftharpoons N_2O_4$ (D) $2HF \rightleftharpoons H_2 + F_2$
- (14) $K_p = K_c$ when Δn is equal to:- (A) Zero (B) One (C) Two (D) Half
- (15) The molal boiling point constant is the ratio of the elevation in boiling point to:-
(A) Molarity (B) Molality (C) Mole fraction of solvent (D) Mole fraction of solute
- (16) If a strip of Cu metal is placed in a solution of $FeSO_4$:- (A) Cu will be deposited
(B) Fe is precipitated out (C) Cu and Fe both dissolve (D) Cu and Fe both precipitated
- (17) The unit of the rate constant is the same as that of the rate of reaction in:-
(A) 1st order reaction (B) 2nd order reaction (C) Zero order reaction (D) 3rd order reaction

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BOARD OF INTERMEDIATE AND SECONDARY EDUCATION,

MULTAN

OBJECTIVE KEY FOR INTER (PART I/II) Supply Examination, 2016.

Name of Subject Chemistry Session _____

Q. Nos.	Paper Code	Paper Code	Paper Code	Paper Code
	6481	6483	6485	6487
1.	B	A	A	A
2.	A	B	D	A
3.	B	B	A	C
4.	B	C	A	A
5.	A	B	D	D
6.	A	A	B/D	A
7.	C	B	A	A
8.	A	B	B	D
9.	D	A	B	B/D
10.	A	A	C	A
11.	A	C	B	B
12.	D	A	A	B
13.	B/D	D	B	C
14.	A	A	B	B
15.	B	A	A	A
16.	B	D	A	B
17.	C	B/D	C	B
18.				
19.				
20.				

سرٹیفکیٹ بابت تصحیح سوالیہ پرچہ/ مارکنگ Key

ہم نے مضمون: Chemistry پرچہ: 1 گروپ: سکیم انٹرمیڈیٹ امتحان 2016ء کا سوالیہ پرچہ اشاعتی نمبر: _____ (Subjective & Objective) کو بنظر عینت چیک کر لیا ہے یہ پرچہ سلیبس کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ میں کسی قسم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو اور انگریزی Version بھی چیک کر لیا ہے یہ Version آپس میں مطابقت رکھتے ہیں اور سلیبس (Syllabus) کے مطابق بھی ہیں۔ نیز اس پرچہ کی Key کی بابت بھی تصدیق کی جاتی ہے کہ یہ بھی درست بنائی گئی ہے۔ اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔ مزید یہ کہ ہم نے Key بنانے سے متعلق دفتر کی جانب سے تیار کردہ ہدایات وصول کر کے ان کا بغور مطالعہ کر لیا ہے اور ان کی روشنی میں Key بنائی ہے۔

PREPARED & CHECKED BY

Sl. No.	Name	Designation	Institution	Mobile No.	Signature
1.	M. Tariq Shehzad	A.P.	Govt. Emerson College Multan	0334-6070969	
2.	Khalid Mateen	Associate Prof.	Govt. Emerson College	0322-6114844	

ثانوی و اعلیٰ ثانوی تعلیمی بورڈ، ملتان

سورہ: 16-11-2016 مضمون: Chemistry پرچہ: I گروپ:

جزل ہدایات برائے مارکنگ Key نوٹیکیم اولڈ نوٹیکیم (مارکنگ سکیم)

انٹرنیٹ فرسٹ ایڈ ایڈیشن 2016ء

- Q.2. (i) correct answer 2 marks.
(ii) correct answer 2 marks.
(iii) Definition 1 mark + formation 1 mark.
(iv) correct names 2 marks.
(v) Name of any four solvents 2 marks.
(vi) correct answer 2 marks.
(vii) correct difference 2 marks.
(viii) correct reason 2 marks.
(ix) correct justification 2 marks.
(x) correct answer 2 marks.
(xi) correct answer 2 marks.
(xii) correct reason 2 marks.
- Q.3. (i) correct answer 2 marks.
(ii) correct configuration 2 marks.
(iii) Definition 1 mark one importance 1 mark.
(iv) correct answer 2 marks.
(v) correct answer 2 marks.
(vi) correct reason 2 marks.
(vii) correct answer 2 marks.
(viii) correct answer 2 marks.
(ix) 1 + 1 mark
(x) correct answer 2 marks.
(xi) Definition 1 mark + one need 1 mark.
(xii) equation 1 mark + Kc expression 1 mark.
- Q.4. (i) correct answer 2 marks.
(ii) correct answer 2 marks.
(iii) correct comparison 2 marks.
(iv) correct oxidation no. 1 + 1
(v) correct balanced equation 2 marks.
(vi) correct answer 2 marks.
(vii) correct difference 2 marks
(viii) correct Definition 2 marks
(ix) correct answer 2 marks.

ثانوی و اعلیٰ ثانوی تعلیمی بورڈ، ملتان

سورہ: 16-11-2016 مضمون: Chemistry پرچہ I گروپ:

جزل ہدایات برائے مارکنگ Key نیو سکیم اولڈ سکیم (مارکنگ سکیم)

انٹرنیٹ فرسٹ ایڈیشن سالانہ امتحان 2016ء

SECTION - II

Q.5. (a) correct calculation 4 marks.

(b) 1 mark for each definition.

Q.6 (a) four postulates 4 marks.

(b) diagram 1 mark, value 1 mark + description 2 marks.

Q.7 (a) % age 3 marks + no. of molecules 1 mark.

(b) correct solution four marks.

Q.8 (a) 1+1+2.

(b) Definition 1 mark + construction 2 marks + use 1 mark.

Q.9. (a) 1+1+2 marks

(b) 2+2 marks.

SECTION - III

Q.10.

A & B = 1+1+3 marks.

C & D & E = std. solution 1 mark.

equation 1 mark

indicator 1 mark.

procedure 1 mark.

suppose calculations 1 mark.

1- M. Tariq Shehzad
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