TOTAL PAGES : 2

22CHU101N / 22CHU101

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(First Semester)

Branch – **CHEMISTRY**

GENERAL CHEMISTRY-I

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The amount of energy required to remove outer must electron in an neutral gaseous atom is called a) ionization energy b) Electron affinity c) electro negativity d) Hydrogen bonding	K1	CO1
	2	Choose the element which has zero electron affinity a) oxygen b) Fluorine c) Nitrogen d) Argon	K2	CO1
2	3	The transfer electron is called__ a) ionic bond b) covalent bond c) H-bond d) coordinate bond	K1	CO2
	4	The unexpected high boiling point of HF is attributed to a) ionic bonding b) covalent bonding c) H-bonding d) coordinate bonding	K2	CO2
3	5	A ___ involves atoms combining to form chemical compounds and bring stability to the resulting product. a) ionic bond b) chemical bond c) H-bond d) coordinate bond	K2	CO3
	6	Which of the following shows paramagnetic character? a) O_2^- b) CN^- c) CO d) NO^+	K1	CO3
4	7	The ___ law is gas law that states that a gas pressure and volume are inversely proportional. a) boyles law b) Charles law c) gas law d) Avogadro law	K1	CO4
	8	The kinetic theory of matter states that all matter is composed of __ particles. a) large b) small c) polymer d) macro	K2	CO4
5	9	The chemical formula of ethylene is a) $CH_2=CH_2$ b) CH_2-CH_2 c) $CH_2=CH_3$ d) $CH_2=CH_4$	K2	CO5
	10	Field effect operates through a) sigma bond b) π-bond c)H-bond d) Special interaction	K1	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Discuss the de Broglie's equation showing dual behavior of matter with experimental evidence.	K3	CO1
		(OR)		
	11.b.	Explain the following principle with suitable example: (i) Pauli exclusion principle b) Aufbau principle	K3	CO1
2	12.a.	Interpret the following with example i) Inert pair effect ii) Variable electrovalency	K4	CO2
		(OR)		
	12.b.	Predict the shape of PCl_5 molecules with the help of VSEPR theory	K4	CO2
3	13.a.	Distinguish between VB and MO theory	K4	CO3
		(OR)		
	13.b.	Draw the MO energy level diagram for the formation of CO molecule.	K4	CO3
4	14.a.	Explain the boyle's law and Charle's law.	K2	CO4
		(OR)		
	14.b.	Describe the postulates of kinetic theory of gases.	K2	CO4
5	15.a.	Explain the hybridization and geometry of ethylene.	K3	CO5
		(OR)		
	15.b.	Discuss homolytic and heterolytic cleavages with suitable examples	K3	CO5

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Illustrate the significances of various quantum numbers.	K4	CO1
2	17	Summarize the postulates of VSEPR theory.	K4	CO2
3	18	Draw and discuss the MO energy level diagram for the formation of NO molecule.	K4	CO3
4	19	Explain the term collision number, collision diameter, collision frequency and mean free path.	K4	CO4
5	20	Interpret the following with suitable examples: (i) carbocation (ii) carbanion (iii) free radicals (iv) carbenes	K4	CO5

Z-Z-Z END