

Royal College of Arts Science and Commerce
F.Y.B.Sc.
Semester I Sample Question Paper
Chemistry II
USCH 102

Instructions:

- 1) Fill in the blanks with the most appropriate option
- 2) Each question is for 1m in Section I
- 3) Each question is for 2m in Sections II and III

Section I

1	$\text{PCl}_5 \longrightarrow \text{PCl}_3 + \text{Cl}_2$ is _____ order reaction .
a	Zero
b	First
c	Second
d	Third
2	The unit of molar refraction is _____
a	$\text{dm}^3 \text{mol}^{-1}$
b	$\text{dm}^{-3} \text{mol}^1$
c	$\text{dm}^{-3} \text{mol}^{-1}$
d	$\text{m}^{-3} \text{mol}^{-1}$
3	In the periodic table, Group 13 – 18 elements are called _____ block elements.
a	s
b	P
c	d
d	F
4	The most unstable conformation of n-butane ($\text{C}_2\text{-C}_3$) is _____ .
a	Antiperiplanar
b	Synperiplanar
c	Anticlinal
d	Synclinal
5	Stereoisomers that are not enantiomers are _____ .
a	optical isomers
b	geometrical isomers
c	diastereomers
d	Isomers

		Section II
6		The milky and translucent _____ substances produced before conversion to clear liquid have been named _____ .
	a	Crystalline , Cholestric liquid crystals
	b	Isotropic , Thermotropic liquid crystals
	c	Anisotropic , Liquid crystal
	d	Isotropic , Lyotropic liquid crystals
7		Select the incorrect relation.
	a	$1 \text{ dyne} \cdot \text{cm}^{-2} \cdot \text{s} = 1 \text{ Poise}$
	b	$1 \text{ Pa} \cdot \text{s} = 10 \text{ Poise}$
	c	$1 \text{ Nm}^{-2} \cdot \text{s} = 10 \text{ Poise}$
	d	$1 \text{ dyne} \cdot \text{cm}^{-2} \cdot \text{s} = 10 \text{ Poise}$
8		_____ is the only allotropic element of Group 13.
	a	B
	b	Al
	c	Ga
	d	In
9		Identify the type of isomerism in
	a	E-Z
	b	R-S
	c	Cis-Trans
	d	Syn-Anti
10		The _____ sawhorse projection represents
	a	

	b	
	c	
	d	
		Section III
11		The correct expression for determination of order of reaction is
	a	$n = \frac{\log_{10}(t_{1/2})_1 - \log_{10}(t_{1/2})_2}{\log_{10} a_2 - \log_{10} a_1} - 1$
	b	$n = \frac{\log_{10} a_2 - \log_{10} a_1}{\log_{10}(t_{1/2})_1 - \log_{10}(t_{1/2})_2} - 1$
	c	$n = \frac{\log_{10}(t_{1/2})_1 - \log_{10}(t_{1/2})_2}{\log_{10} a_2 - \log_{10} a_1} + 1$
	d	$n = \frac{\log_{10} a_2 - \log_{10} a_1}{\log_{10}(t_{1/2})_1 - \log_{10}(t_{1/2})_2} + 1$

12		An organic liquid and water take 100 sec and 50 secs respectively to flow through an Ostwald's viscometer. The densities of the organic liquid and water are given to be 0.90 kg m^{-3} and 1.00 kg.m^{-3} . If the viscosity of water is $1.0 \times 10^{-3} \text{ kgm}^{-1}\text{s}^{-1}$, calculate that of the organic liquid.
	a	$0.45 \times 10^{-3} \text{ kgm}^{-1}\text{s}^{-1}$
	b	$1.8 \times 10^{-3} \text{ kgm}^{-1}\text{s}^{-1}$
	c	$0.55 \times 10^{-3} \text{ kgm}^{-1}\text{s}^{-1}$
	d	$4.5 \times 10^{-3} \text{ kgm}^{-1}\text{s}^{-1}$
13		Which of the following element forms only monoxides?
	a	Li
	b	Na
	c	K
	d	Rb
14		Assign the correct stereodescriptor to
	a	R
	b	S
	c	E
	d	Z
15		Statement A: The Meso form is optically inactive due to external compensation Statement B : A racemic mixture can be resolved by physical methods
	a	Statement A is True and Statement B is False
	b	Statement A is False and Statement B is True
	c	Both Statements A & B are True
	d	Both Statements A & B are False