

**SAMPLE QUESTIONS**  
**SEMESTER 1 EXAMINATIONS**  
**JANUARY 2021**  
**CLASS-F.Y.B.Sc**  
**SUBJECT: CHEMISTRY**  
**PAPER -I**  
**USCH101**

**Unit-1**

1.	A thermodynamic process in which the pressure of the system <i>remains constant</i> throughout is called as.....process and the process in which the .....of the system <i>remains constant</i> throughout is called as adiabatic process.	
	(a)	isochoric ; pressure
	(b)	isothermal ; temperature
	(c)	isothermal ; temperature
	(d)	isobaric ; heat
2.	What is the normality of H <sub>2</sub> SO <sub>4</sub> , when 49g of H <sub>2</sub> SO <sub>4</sub> present in 500ml of solution. (H=1, S=32, O=16)	
	(a)	4.0 N
	(b)	2.0 N
	(c)	0.4 N
	(d)	0.2 N
3.	Water pollution is measured in.....	
	(a)	(w/w)%
	(b)	(w/v)%
	(c)	(v/v)%
	(d)	ppm
4.	For an exothermic reaction $\Delta H$ is always.....	
	(a)	negative
	(b)	positive
	(c)	zero
	(d)	infinite

5.	The correct expression for enthalpy change in a liquid system is.....
(a)	$\Delta H = \Delta U - \Delta nTR$
(b)	$\Delta H = \Delta U + \Delta nRT$
(c)	$\Delta H = \Delta U$
(d)	$\Delta H = \Delta U + P\Delta V$

## Unit-2

6.	The order of penetration of orbitals in a shell varies in the following order
(a)	$s > p > d > f$
(b)	$s < p < d < f$
(c)	$s = p = d = f$
(d)	$p > s > d > f$

7.	The effective nuclear charge on the outermost electron in Na(Atomic number=11) as per Slaters ' rules is
(a)	6.2
(b)	3.4
(c)	5.2
(d)	4.8

8.	The correct formula for the calculation of radial nodes is
(a)	$n-1$
(b)	$n-1-2$
(c)	$n-1-1$
(d)	$n-m-1$

9.	An element with atomic number 75 belongs to the ----- block in the periodic table.	
	(a)	s
	(b)	p
	(c)	d
	(d)	f

10.	The radial probability distribution curve for a 3d approaches zero at ----- points.	
	(a)	2
	(b)	0
	(c)	1
	(d)	3

### Unit-3

11.	Hybridization of 1 and 2 carbon atoms in $\text{C}^1\text{H}_2 = \text{C}^2 = \text{C}\text{H}_2$	
	(a)	sp, sp
	(b)	sp <sup>2</sup> , sp <sup>2</sup>
	(c)	sp <sup>2</sup> , sp
	(d)	sp <sup>3</sup> , sp <sup>2</sup>

12.	Most stable carbonium ion is.....	
	(a)	ethyl
	(b)	tert. butyl
	(c)	methyl
	(d)	iso propyl

13.	Which of the following is +R or +M group?	
	(a)	-NO <sub>2</sub>
	(b)	-CN
	(c)	-NHCOCH <sub>3</sub>
	(d)	-CHO

14.	The IUPAC name of the compound	
	(a)	2-Cyano-3-oxopentanal
	(b)	2-Formyl-2,3-dioxopentanenitrile
	(c)	2,3-dioxopentanenitrile
	(d)	2-Formyl-3-oxopentanenitrile

15.	Which compound is most acidic?	
	(a)	$\text{FCH}_2\text{CO}_2\text{H}$
	(b)	$\text{ClCH}_2\text{CO}_2\text{H}$
	(c)	$\text{ICH}_2\text{CO}_2\text{H}$
	(d)	$\text{BrCH}_2\text{CO}_2\text{H}$