	Sanjay Ghodawat University, Kolhapur Established as State Private University under Govt. of Maharashtra. Act No XL, 2017	2019-20
Year and Program: 2019-20; SY BSc	**School of Science**	**Department of Chemistry** Time:-10:30am to 11am
Course Code: CHS201	**Course Title:** Chemistry III	**Semester – Odd (III)**
Day and Date: Wednesday 20/11/19	**End Semester Examination**	**Time:** ½ **hrs, Max Marks: 100**
PRN:	**Seat No:**	**Section A Marks out of 20:**
Jr. Supervisor Signature:	**Student Signature:**	

Section A

Instructions: 1) All Questions are compulsory.
2) For MCQs mark tic (√) for correct answer. No marks for multiple tics (√).
3) Section A should be submitted to Jr Supervisor immediately after first 30 min.

Q.1	**Choose the correct answer for following (Each 1 mark)**	Bloom's level	CO
1	Vapour pressure of a solvent is 17.5 mm of Hg while that of its dilute solution is 17.45 mm. The mole fraction of solvent is ------. a) 0.997 b) 0.075 c) 17.48 d) 1.05	L1	1
2	The dissociation of calcium carbonate to give calcium oxide and carbon dioxide is a -------- system. a) One component b) Two components c) Tricomponent d) Tetracomponent	L1	1
3	For an ideal solution -------. a) $\Delta H > 1$ b) $\Delta H < 1$ c) $\Delta H = 1$ d) $\Delta H = 0$	L1	1
4	Hinsberg's test is used to differentiate--------. a) 1° and 2° amines b) 1°,2° and 3° amines c) 1°,2° and 3° alcohols d) Only 1°amines	L2	2
5	……amines form stable dizonium salts. a) Primary aliphatic b) Primary aromatic c) Secondary aliphatic d) Secondary aromatic	L2	2
6	High boiling points of carboxylic acids are resulting out of a) High molecular weight b) Hydrogen bonding c) Large molecular structure d) Low molecular weight	L1	2
7	Which of the following is an equation of Kohlrausch law of independent	L1	3

ESE

migration of ions?

a) $\Lambda = \lambda_+ + \lambda_-$
b) $\Lambda = \lambda_+ - \lambda_-$
c) $\Lambda = \lambda_+ / \lambda_-$
d) $\alpha = \lambda / \lambda_\infty$

8 The potential of standard hydrogen electrode is ---. L1 3

a) 0
b) 1
c) Calomel electrode
d) Copper metal ion electrode

9 Sum of transport number of cations and anions in solution is equal to ---. L1 3

a) 0.1
b) 0
c) 1
d) 0.059

10 At 30^0C partial pressure of pure ether is 646 mm of mercury. If mole fraction of ether in solution of alcohol is 0.5, then its partial pressure will be ------. L1 3

a) 32.3
b) 323
c) 141.5
d) 14.15

11 Conductivity of ionic solution does not depend upon ----. L1 3

a) cation
b) molecules
c) anions
d) mobility of ions

12 Which of the following concentration of solution of KCl has lowest value of specific conductivity? L1 3

a) 1 M
b) 0.1 M
c) 0.01 M
d) 0.001 M

13 Which of the following is the unit of specific conductivity of solution? L1 3

a) ohm cm
b) ohm per cm
c) mho per cm
d) mho cm

14 Amino acids are building blocks of ------. L1 4

a) Carbohydrates
b) Lipids
c) Proteins
d) Nucleic acids

15 Which of the following will form Zwitter ion? L2 4

a) Cl_3CCOOH
b) CH_3NH_2
c) $ClCH_2NO_2$
d) $NH_2CH(CH_3)COOH$

16 Carbohydrates originate out of the process of..... L1 4

a) Fermentation

b) Photosynthesis
c) Photodegradation
d) Respiration

17 In the biological cells ..... is used to synthesize proteins. L2 4
a) Glucose
b) α-Amino acids
c) Nucleosides
d) Lactose

18 In Edman degradation the terminal amino group is labeled with..... . L1 4
a) Phenyl isothiocyanate
b) Phenyl isocyanate
c) Radio isotope
d) Phenyl acetate

19 In Edman degradation, analysis is carried out using..... . L2 4
a) TLC
b) HPLC
c) GCMS
d) NMR

20 Which of the following is blood sugar? L2 4
a) Glucose
b) Fructose
c) Sucrose
d) Lactose

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Year and Program: 2019-20; SY BSc	**School of Science**	**Department of Chemistry** Time: 11am to 1.30pm
Course Code: CHS201	**Course Title:** Chemistry III	**Semester – Odd (III)**
Day and Date: Wednesday 20/11/19	**End Semester Examination**	**Time: 2.5 hrs, Max Marks: 100**
PRN:	**Seat No:**	**Section B** **Marks 80**

Section B

			Mark	Bloom's level	CO
Q.2		**Solve any Two**	**12**		
	a)	What is reduced phase rule? Describe phase diagram of solid A and solid B exhibiting simple eutectic point.	**6**	L2	1
	b)	State and explain Raoult's law of ideal solution. Explain non-ideal solution of two miscible liquids A and B exhibiting negative deviation.	**6**	L1	1
	c)	Explain azeotropic mixture on the basis of boiling point-composition diagram of HCl-Water system.	**6**	L2	1
Q.3		**Solve any Two**	**12**		
	a)	Give any three methods of preparation of carboxylic acids.	**6**	L1	2
	b)	Take a comparative account of amines and amides.	**6**	L1	2
	c)	What are carboxylic acids? Comment on electrophilicity of carbonyl carbon of carboxylic acids.	**6**	L2	2
Q.4	a)	**Solve any Two**	**12**		
	i)	Discuss with diagram the phenomenon of migration of ions and loss in concentration of solution around electrodes on passage of electric current. Comment on Hittorf's rule and ionic mobilities.	**6**	L2	3
	ii)	Comment on equivalent conductivity at infinite dilution and Kohlrausch law.	**6**	L3	3
	iii)	Give an account of important applications of conductivity measurements.	**6**	L4	3
Q.4	b)	**Solve any Four**	**16**		
	i)	How quinhydrone electrode is constructed in laboratory? Give its presentation, electrode reaction, potential and application in determination of pH of acid solution.	**4**	L3	3
	ii)	The resistance of 0.1 N KCl solution is 245 ohm. Calculate the specific and equivalent conductivity of solution if the electrodes are 4 cm apart and each having an area of 7 sq.cm.	**4**	L2	3
	iii)	Show that equivalent conductivity is the product of specific conductivity and volume of solution containing one gram equivalent of dissolved electrolyte.	**4**	L2	3
	iv)	Derive relation between observed resistance, specific conductivity and equivalent conductivity of solution. What is cell constant in conductance measurements?	**4**	L3	3

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	v)	Give distinguishing features of solutions of strong electrolytes and weak electrolytes.	**4**	L3	3
Q.5	a)	**Solve any Two**	**16**		
	i)	Explain in detail synthesis of peptides.	**8**	L2	4
	ii)	What are amino acids? Discuss in detail synthesis of amino acids starting with potassium phthalimide.	**8**	L3	4
	iii)	What are carbohydrates? Give classification and general properties of carbohydrates.	**8**	L2	4
Q.5	b)	**Solve any Three**	**12**		
	i)	Write note on Ninhydrin test.	**4**	L2	4
	ii)	Give any two reactions of amino acids.	**4**	L1	4
	iii)	What is Isoelectric point of amino acid? Explain.	**4**	L3	4
	iv)	Give structure, properties and applications of any two amino acids.	**4**	L2	4