Reg. No.: | | | | | | | | | |

G.T.N. ARTS COLLEGE(AUTONOMOUS)

(Affiliated to Madurai Kamaraj University || Accredited with 'B' Grade by NAAC)

END SEMESTER EXAMINATION - APRIL - 2021

(UNDER OUTCOME BASED EDUCATION (OBE) PATTERN)

Programme : B.Sc. Chemistry | **Date : 25.06.2021**

Course Code : 20UCHC21 | **Time : 10:00 AM - 1:00 PM**

Course Title : Physical Chemistry - I | **Max. Marks : 100**

Q. No.	SECTION - A (20 * 1 = 20 Marks) Answer ALL Questions	CO(s)	K - Level
1.	What is the reason an ideal gas obeying kinetic gas equation?	CO1	K1
	1.Its temperature is more than critical temperature	2.Its pressure is more than critical pressure	
	3.Its pressure is more than critical pressure but temperature is less than critical temperature	4.It cannot be liquefied at any value of P and T	
2.	A gas gets cooled on expansion.....the inversion temperature	CO1	K2
	1.At	2.Above	
	3.Below	4.Both (b) and (c)	
3.	Which of the following is not a correct postulate of the kinetic theory of gases?	CO1	K1
	1.The gas molecules are in random motion	2.The gaseous collision are perfectly elastic	
	3.The average kinetic energy of different gases are equal at a particular temperature	4.The pressure exerted on the walls of the container is due to the intermolecular forces	
4.	Which of the following statement is correct?	CO1	K1
	1.At constant temperature, the kinetic energy of all gas molecules is the same	2.At constant temperature, the kinetic energy of different molecules is different	
	3.At constant temperature, the kinetic energy is greater for heavier gas molecules	4.At constant temperature, the kinetic energy is less for heavier gas molecules	
5.	Which of the following is not an emulsion?	CO2	K1
	1.Butter	2.Ice cream	
	3.Milk	4.Cloud	
6.	Where does colloidal solution find application in?	CO2	K2
	1.In milk industries	2.In chromatic chemical industries	
	3.In crystallography	4.In textiles	
7.	The term used to determine the protecting power of a lyophilic colloid is	CO2	K2
	1.oxidation number	2.coagulation value	

3.gold number

4.criticalmicelle concentration

8.	The blue Colour of water in the sea is due to 1.Refraction of blue light by the impurities in sea water 3.Scattering of blue light by water molecules 2.Reflection of blue sky by sea water 4.Absorption of other colors except the blue Color by water molecules		CO2	K2
9.	Liquids with high molecular masses have _____ viscosity 1.Greater 3.Zero 2.Lesser 4.none of these		CO3	K1
10.	Insects can walk on the surface of water due to 1.Viscosity 3.Refractivity 2.surface tension 4.optical activity		CO3	K1
11.	In general, viscosity_____ with temperature 1.Decreases 3.remains the same 2.Increases 4.none of the above		CO3	K2
12.	The strength of H-bonding is about_____ as that of a covalent bond 1.½ 3.1/10 2.1/3 4.1/100		CO3	K1
13.	Physical adsorption is a _____ process. 1.Reversible 3.Endothermic 2.Irreversible 4.Equilibrium		CO4	K1
14.	The heat of adsorption in chemical adsorption lies in the range of 1.a) 1-10 kJ/mol 3.c) 40-100 kJ/mol 2.b) 10-400 kJ/mol 4.d) 40-400 kJ/mol		CO4	K2
15.	Chemisorption occurs at _____ temperature . 1.High 3.Constant 2.Low 4.Moderate		CO4	K2
16.	The adsorption of gases on metal surfaces is called. 1.Adsorption 3.Occlusion 2.Absorption 4.Sorption		CO4	K1
17.	In reversible reaction, catalyst_____ 1.alter the equilibrium constant of the reaction 3.increases the rate of forward reaction 2.decrease the rate of forward reaction 4.increase the rate of backward and forward reaction		CO5	K2
18.	A catalyst which decrease or retards the rate of reaction is called 1.positive catalyst 3.catalysis 2.negative catalyst 4.promoter		CO5	K1
19.	The intermediate compound formation theory generally applies to		CO5	K2

	1.homogeneous catalytic reaction	2.heterogeneous catalytic reaction		
	3.autocatalytic reaction	4.all of these		
20.	The enzyme which can catalyse the convertion of glucose to ethanol is		CO5	K2
	1.maltase	2.diastase		
	3.invertase	4.zymase		

Q. No.	SECTION - B (5 * 6 = 30 Marks) Answer ALL Questions	CO(s)	K - Level
21. (a)	Define RMS velocity. Compare RMS, Average and most Probable velocity?	CO1	K2
	[OR]		
(b)	What is inversion temperature? Relate inversion temperature to van der waals constants?	CO1	K2
22. (a)	What are colloids and compare colloids with solution and suspension?	CO2	K2
	[OR]		
(b)	Compare elastic and non-elastic gels.	CO2	K2
23. (a)	Define coefficient of viscosity. Relate viscosity with temperature.	CO3	K2
	[OR]		
(b)	Define the term viscosity, coefficient of viscosity. Show the factors affecting the viscosity of liquid?	CO3	K2
24. (a)	Give the Freundlich adsorption isotherm and explain the terms in it.	CO4	K2
	[OR]		
(b)	Mention the role of zeolite in water softening ?	CO4	K2
25. (a)	Interpret the following a) Promoters(2marks)b) Catalytic poison (2marks) c) Autocatalysts(2marks)	CO5	K2
	[OR]		
(b)	Solve Michaelis-Menten equation.	CO5	K3

Q. No.	SECTION - C (5 * 10 = 50 Marks) Answer ALL Questions	CO(s)	K - Level
26. (a)	Derive van der waals equation of state. How it explains the derivation of gases from ideal behaviour.	CO1	K2
	[OR]		
(b)	Explain the determination of Critical constant.	CO1	K2
27. (a)	Classify emulsions and explain emulsifiers with examples.	CO2	K2
	[OR]		
(b)	Show protective action of colloids? And Outline[4] a)Hardy Schulze law[2] b)gold number [2] c)Hofmeister series[2]	CO2	K2
28. (a)	State and explain Trouton's law	CO3	K2
	[OR]		
(b)	The surface tension of water at 293 K is 72.73×10^{-3} Nm^{-2}. How high will water rise in a capillary of diameter 0.01cm?	CO3	K3
29. (a)	Enumerate the applications of adsorption in various fields.	CO4	K4
	[OR]		
(b)	a)What are adsorption isotherms?[3]	CO4	K4

b)Give diagramatic representations of .various types of adsorption isotherms .[7]

30. (a) Construct an expression for the kinetics of enzyme catalysis of Michaelis equation. What will be the effect of very high substance concentration? CO5 K3

[OR]

(b) Demonstrate the pH dependence of rate constants of catalysed reaction. CO5 K2

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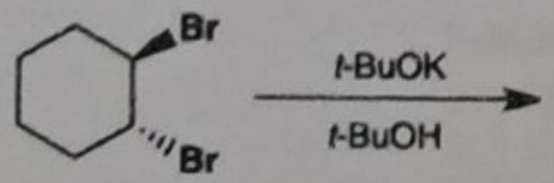
END SEMESTER EXAMINATION - APRIL - 2021

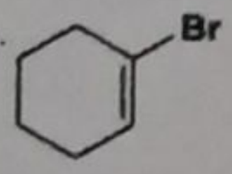
(UNDER OUTCOME BASED EDUCATION (OBE) PATTERN)

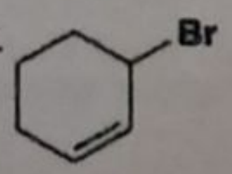
Programme : B.Sc. Chemistry
Course Code : 20UCHC22
Course Title : Organic Chemistry - II

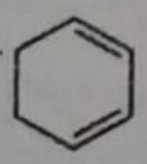
Date : 26.06.2021
Time : 10:00 AM - 1:00 PM
Max. Marks : 100

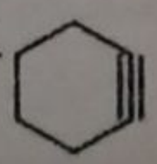
Q. No.	SECTION - A (20 * 1 = 20 Marks) Answer ALL Questions	CO(s)	K - Level
1.	In S_N^2 reaction mechanism, which one of the following is the most reactive?	CO1	K2
	1.C_6H_6 2.C_2H_5X 3.CH_3X 4.R_2CHX		
2.	The increasing order of nucleophilicity is	CO1	K2
	1.$NH_2^- < F^- < OH^- < ClO_4$ 2.$ClO_4 < OH^- < F^- < NH_2^-$ 3.$ClO_4 < F^- < OH^- < NH_2^-$ 4.$NH_2^- < OH^- < F^- < ClO_4$		
3.	Which of the following does not undergo S_N2 reaction?	CO1	K1
	1.Vinylic halide 2.allyl chloride 3.chlorobenzene 4.all of the above		
4.	The carbonium ion which is the most stable is	CO1	K1
	1.$(CH_3)_3C^+$ 2.Ph_3C^+ 3.CH_3^+ 4.$C_2H_5^+$		
5.	A transition state is an intermediate in _____	CO2	K1
	1.E1 reaction 2.E2 reaction 3.SN_1 reaction 4.None of these		
6.	Ethylene bromide on treatment with Zn gives	CO2	K1
	1.Alkyne 2.Alkene 3.Alkane 4.All of the above		
7.	Which is the final main product of the following reaction of trans-1,2-dibromocyclohexane?	CO2	K2



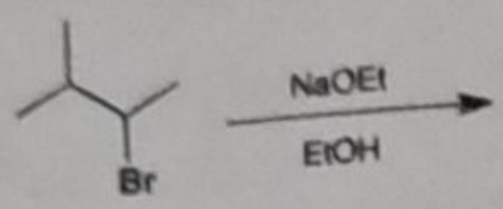
1. 

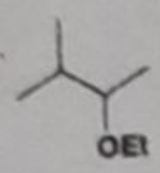
2. 

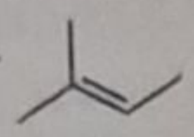
3. 

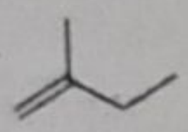
4. 

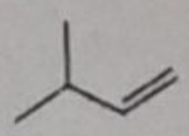
8. Which is the main product of the following reaction? CO2 K2



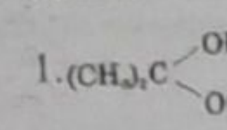
1. 

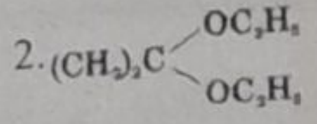
2. 

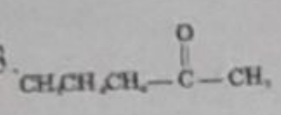
3. 

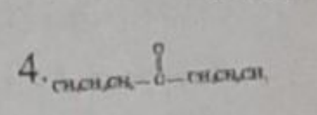
4. 

9. Acetone is treated with excess of ethanol in the presence of hydrochloric acid. The product obtained is: CO3 K2

1. 

2. 

3. 

4. 

10. Which carbonyl compound would react violently with water? CO3 K1

1. Propan-2-one (acetone)
2. Ethanoyl chloride (Acetyl chloride)
3. Ethanoic acid (Acetic acid)
4. Ethanal (Acetaldehyde)

11. Heating a mixture of sodium benzoate and soda lime gives calcium benzoate _____ CO3 K2

1. Calcium benzoate
2. Benzene
3. Sodium benzoate
4. Methane

12. Benzoic acid reacts with conc.HNO_3 and conc.H_2SO_4 to give CO3 K1

1. o-nitrobenzoic acid
2. p-nitrobenzoic acid
3. m-nitrobenzoic acid
4. o,p-dinitrobenzoic acid

13. Electrophilic substitutions of heterocylic five member rings occurs preferentially at CO4 K1

1. 2 & 5 positions
2. 2 & 4 positions
3. 2 & 3 positions
4. None of these

14. Which statement about thiophene is incorrect? CO4 K2

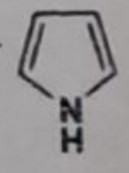
1. Thiophene is more reactive towards electrophiles than furan
2. The S atom contributes two electrons to the π-system
3. Thiophene is polar
4. Oxidative polymerization of thiophene leads to a conducting polymer

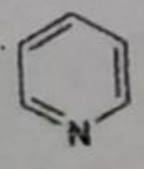
15. Nitration of pyrrole is best carried out using: CO4 K1

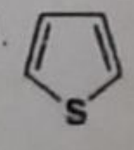
1. Concentrated nitric and sulphuric acids
2. Ammonium nitrate
3. Nitric acid
4. Acetyl nitrate

16. Which is most reactive in electrophilic aromatic substitution? CO4 K2

1. 

2. 

3. 

4. 

17. Which characteristic is found in both purines and pyrimidines CO5 K

1.They both have aromatic rings that undergo substantial tautomerization at neutral pH.

2.They both are weak bases that can be positively charged at neutral pH.

3.They both have multiple pKa values that result in zwitterion forms.

4.They both can form stable N-glycosidic bonds with β D-ribofuranose

18. Which of the following is pyrimidine nucleotide — CO5 K2

1.Uracil

2.Cytosine

3.Thymine

4.All of the above

19. The oxidation of quinoline to quinolinic acid is done by _____ — CO5 K1

1.Ozone

2.Hydrogen Peroxide

3.Perbenzoic acid

4.Potassium permanganate

20. Which compound is not heteroaromatic? — CO5 K2

1.Furan

2.Indole

3.Quinoline

4.Piperidine

Q. No.	SECTION - B (5 * 6 = 30 Marks) Answer ALL Questions	CO(s)	K - Level
21. (a)	Explain S_N1, S_N2 reaction	CO1	K1
	[OR]		
(b)	Give short notes on kinetic and stereo chemistry aspect of S_N1 reaction?	CO1	K1
22. (a)	Explain E1 reactions with mechanism	CO2	K2
	[OR]		
(b)	Define elimination reactions. What are their types?	CO2	K2
23. (a)	α- hydrogen of aldehydes is acidic. Discuss	CO3	K2
	[OR]		
(b)	Analyze why carbonyl compounds undergo only nucleophilic addition reactions.	CO3	K3
24. (a)	Explain why pyrrole is more reactive than other five membered heterocyclic compounds	CO4	K2
	[OR]		
(b)	Explain the preparation of pyrrole	CO4	K2
25. (a)	Discuss the structure of Quinoline	CO5	K2
	[OR]		
(b)	Give the general introduction of Indole.	CO5	K2

Q. No.	SECTION - C (5 * 10 = 50 Marks) Answer ALL Questions	CO(s)	K - Level
26. (a)	Explain bimolecular nucleophilic substitution reaction with mechanism and kinetic of S_N2	CO1	K1
	[OR]		
(b)	What do you know about S_N1 reaction? Write the short notes on S_N1 mechanism.	CO1	K2
27. (a)	(i) Explain Ei reactions with mechanism. (ii)What is the difference between elimination and substitution reactions?	CO2	K2
	[OR]		
(b)	What are elimination reactions? Explain E1 and E2 reaction.	CO2	K2

28. (a)	Write notes on Meerwein-Ponndorf-Verley reduction	CO3	K2
	[OR]		
(b)	Give brief note on the nucleophilic addition mechanism involved in α-bromo ester to β hydroxyl ester(Reformsky reaction)	CO3	K3
29. (a)	(i)Give preparation and uses of furan and its derivatives[4] (ii) Which of the following has high aromaticity and why? a) Pyrrole b) Furan c) Thiophene [6]	CO4	K2
	[OR]		
(b)	Explain why five membered heterocyclic compounds are aromatic	CO4	K2
30. (a)	Explain in details Electrophilic substitution reactions of (i) Isoquinoline (ii) Quinoline.	CO5	K3
	[OR]		
(b)	How will you prepare quinoline by (i) skraup method (ii)Bischler-napieralsky reaction	CO5	K3

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END SEMESTER EXAMINATION - APRIL - 2021

(UNDER OUTCOME BASED EDUCATION (OBE) PATTERN)

Programme : ALL UNDERGRADUATE STUDENTS | **Date : 23.06.2021**

Course Code : 20UEGS21 | **Time : 10:00 AM - 1:00 PM**

Course Title : Environment and Gender Studies | **Max. Marks : 100**

Q. No.	SECTION - A (20 * 1 = 20 Marks) Answer ALL Questions	CO(s)	K - Level
1.	World environmental day is celebrated on ---------. உலக சுற்றுச்சூழல் கொண்டாடப்படும் தினம் 1.March மார்ச் 15 2.April ஏப்ரல் 15 3.May மே 5 4.Juneஜூன் 5	CO1	K2
2.	_____ is the gaseous envelope of the Earth. _____ என்பது பூமியின் வாயு உறை. 1.Atmosphereவளிமண்டலம் 2.Hydrosphereஹைட்ரோஸ்பியர் 3.Lithosphereலித்தோஸ்பியர் 4.Biosphereஉயிர்க்கோளம்	CO1	K1
3.	Water moves through the hydrosphere is known as the ---------- cycle. நீர் நிலை வழியாக நீர் நகரும் இது---------- சுழற்சி என அழைக்கப்படுகிறது. 1.Cloudமேகம் 2.Sand மணல் 3.Hydrologicஹைட்ரோலஜிக் 4.Habitatவாழ்விடம்	CO1	K2
4.	Educating the people on Environment and its impact is called ---------- Education சுற்றுச்சூழல் மற்றும் அதன் தாக்கம் குறித்து மக்களுக்கு கற்பித்தல் ---------- கல்வி என்று அழைக்கப்படுகிறது 1.Studyபடிப்பு 2.Environmental சுற்றுச்சூழல் 3.Scienceஅறிவியல் 4.Family குடும்பம்	CO1	K1
5.	The occurrence of a species in a small area and nowhere else in the world is called ஒரு சிறிய பகுதியில் மற்றும் உலகில் வேறு எங்கும் ஒரு இனத்தின் நிகழ்வு ---------- என்று அழைக்கப்படுகிறது 1.Endemismஎண்டெமிசம் 2.Isolatismதனிமை 3.Rareismஅரிதானவாதம் 4.Atomismஅணுவாதம்	CO2	K1
6.	Among plants, ---------- constitute the largest number of species in the world. தாவரங்களில், ---------- உலகிலேயே அதிக எண்ணிக்கையிலான இனங்கள் உள்ளன. 1.Algaeபாசி 2.Bryophytesபிரையோபைட்டுகள் 3.Gymnospermsஜிம்னோஸ்பெர்ம்ஸ் 4.Angiosperms ஆஞ்சியோஸ்பெர்ம்ஸ்	CO2	K2
7.	Whiskey is prepared from ---------- ---------- இருந்து விஸ்கி தயாரிக்கப்படுகிறது	CO2	K1

1.Grapesதிராட்சை

2.Peach, Apple and Orangeபீச், ஆப்பிள் மற்றும் ஆரஞ்சு

3.Corn, Rye and Malt சோளம், கம்பு மற்றும் மால்ட்

4.Cane, Beet and Molasses கரும்பு மற்றும் பீட் மோலாஸ்கள்

8. Quinine is obtained from CO2 K2
குயினின் இதில் இருந்து பெறப்படுகிறது___

1.Chinchona treeசின்சோனா மரம்

2.Black pepper கருமிளகு

3.Garlicபூண்டு

4.Sugarcaneகரும்பு

9. Which of the following kinetic energy is converted into electrical energy? CO3 K1
பின்வரும் எந்த இயக்க ஆற்றல் மின் சக்தியாக மாற்றப்படுகிறது?

1.Tidal energy அலை ஆற்றல்

2.Wind energyகாற்று ஆற்றல்

3.Hydro energyநீர் ஆற்றல்

4.All of theseஇவை அனைத்தும்

10. Which of the following produces energy because of temperature difference at various levels in ocean? CO3 K2
கடலில் பல்வேறு நிலைகளில் வெப்பநிலை வேறுபாடு இருப்பதால் பின்வருவனவற்றில் எது ஆற்றலை உருவாக்குகிறது?

1.Tidal energyஅலை ஆற்றல்

2.Wave energyஅலை ஆற்றல்

3.Solar energy சூரிய சக்தி

4.Ocean thermal energyபெருங்கடல் வெப்ப ஆற்றல்

11. Which of the following is the odd one out? CO3 K1
பின்வருவனவற்றில் மாறுபட்டவை எது?

1.Petroleumபெட்ரோலியம்

2.Hydro electricityநீர் மின்சாரம்

3.Coalநிலக்கரி

4.CNGசி.என்.ஜி.

12. Which method is used to produce electricity in hydroelectric power plant? CO3 K2
நீர் மின் நிலையத்தில் மின்சாரம் தயாரிக்க எந்த முறை பயன்படுத்தப்படுகிறது?

1.By boiling the water to produde steamநீராவி தயாரிக்க தண்ணீரை கொதிக்க வைப்பதன் மூலம்

2.By running dynamoதண்ணீரை அயனியாக்கம் செய்வதன் மூலம்

3.By ionizing waterஇயக்க ஆற்றலால் டைனமோவை இயக்குவதன் மூலம்

4.Any of the aboveமேலே உள்ள ஏதேனும்

13. Identify the environmental problem caused by Computer Industry CO4 K1
கணினி துறையால் ஏற்படும் சுற்றுச்சூழல் பிரச்சினையை அடையாளம் காணவும்

1.By not providing jobs to humansமனிதர்களுக்கு வேலை வழங்காததன் மூலம்

2.By modern technologies like ICT,block chainsஐ.சி.டி., பிளாக் சங்கிலிகள் போன்ற நவீனதொழில்நுட்பங்களால்

3.By printing unnecessary large amount of filesதேவையற்ற பெரிய அளவு கோப்புகளை அச்சிடுவதன் மூலம்.

4.By making people lazyமக்களை சோம்பேறிகளாக்குவதன் மூலம்.

14. Organic Agriculture advocates avoiding the use of _____ CO4 K1
கரிம வேளாண்மை _____ பயன்பாட்டை தவிர்க்க

1.Organic Manureகரிம உரம்

2.Stored Waterசேமிக்கப்பட்ட நீர்

3.Modern Techniques in harvestingஅறுவடையில் நவீன நுட்பங்கள்

4.Chemical Fertilizersஇரசாயன உரங்கள்

15. Which one of the following is the prime factor towards Soil pollution? CO4 K2
மண் மாசுபாட்டிற்கான பிரதான காரணி பின்வருவனவற்றில் எது?

1.Soil erosionமண் அரிப்பு

2.Floodsவெள்ளம்

3.Dumping of Industrial wastesதொழில்துறை கழிவுகளை கொட்டுதல்

4.Using land for irrigationபாசனத்திற்காக நிலத்தைப் பயன்படுத்துதல்

16. Find the major non renewable energy usage in India CO4 K2
இந்தியாவில் புதுப்பிக்க முடியாத முக்கிய எரிசக்தி பயன்பாட்டைக் கண்டறியவும்

1.Coalநிலக்கரி

2.Petroleum products பெட்ரோலிய பொருட்கள்

3.Natural gases இயற்கை வாயுக்கள்

4.Nuclearஅணு

17. According to Census of India 2011, literacy rate of females is _____ compared to males which is 82.14%. CO5 K1
இந்திய மக்கள்தொகை கணக்கெடுப்பின்படி, பெண்களின் கல்வியறிவு விகிதம் ஆண்களுடன் ஒப்பிடும்போது _____ ஆகும், இது 82.14% ஆகும்.

1.65.46%

2.66.12%

3.67%

4.73.21%

18. Who first used the term gender? CO5 K2
பாலினம் என்ற வார்த்தையை முதலில் பயன்படுத்தியவர் யார்?

1.Robert Stollerராபர்ட்ஸ்டோலர்

2.Sigmund Freud சிக்மண்ட்பிராய்ட்

3.Karl Jungகார்ல்ஜங்

4.Judith Butlerஜூடித்பட்லர்

19. Gender identity is usually formed by age of _____. CO5 K2
பாலினஅடையாளம்பொதுவாக _____ வயதில்உருவாகிறது.

1.Fiveஐந்து

2.Sixஆறு

3.Threeமூன்று

4.Fourநான்கு

20. _____ is defined as a personal conception of oneself as male or female (or rarely, both or neither). CO5 K1

தன்னைஆண்அல்லதுபெண் (அல்லதுஅரிதாக,
இரண்டும்அல்லதுஇல்லை)
என்றதனிப்பட்டகருத்தாகவரையறுக்கப்படுகிறது.

1.Gender Identity
பாலினஅடையாளம்

2.Gender roles
பாலினபாத்திரங்கள்

3.Gender discrimination
பாலினபாகுபாடு

4.Gender
equalityபாலினசமத்துவம்

SECTION - B (5 * 6 = 30 Marks)

Answer ALL Questions

Q. No.		CO(s)	K. Level
21. (a)	Explain the Global Warming. புவி வெப்பமாவதை பற்றி விவரிக்கவும்.	CO1	K1
	[OR]		
(b)	What is meant by Acid rain? அமிலமழை என்றால் என்ன?	CO1	K1
22. (a)	Write a short note on Food Chain. உணவு சங்கிலி பற்றி குறிப்பு எழுதுக	CO2	K2
	[OR]		
(b)	Explain the abiotic components of an Eco system. சுற்றுச்சூழல் அமைப்பில் உயிரற்ற காரணிகளை விளக்குக	CO2	K2
23. (a)	Explain briefly about Renewable energy resources. புதுப்பிக்கத்தக்க எரிசக்தி வளங்களைப் பற்றி சுருக்கமாக விளக்குக.	CO3	K2
	[OR]		
(b)	Summarize the advantages and disadvantage of wind conservation system. காற்றாலை பாதுகாப்பு அமைப்பின்நன்மைகள் மற்றும் தீமைகளை சுருக்கமாகக் விளக்குக.	CO3	K2
24. (a)	Compare Renewable energy resources and Non – Renewable energy resources. புதுப்பிக்கத்தக்க எரிசக்தி வளங்களையும் புதுப்பிக்க முடியாத ஆற்றல் வளங்களையும் ஒப்பிடுக	CO4	K2
	[OR]		
(b)	What is Environmental pollution? State its causes. சுற்றுச்சூழல் மாசுபாடு என்றால் என்ன? அதன் காரணங்களைக் கூறுக	CO4	K2
25. (a)	What are the steps we can take to end Gender inequality? பாலினசமத்துவமின்மையைமுடிவுக்குக்கொண்டுவரநாம்எடுக்கக்கூடியநடவடிக்கை என்ன?	CO5	K2
	[OR]		
(b)	Write down three ways to liberate the LGBTQ+ in your country. உங்கள்நாட்டில் LGBTQ + ஐ விடுவிக்க மூன்று வழிகளை எழுதுக.	CO5	K2

SECTION - C (5 * 10 = 50 Marks)

Answer ALL Questions

Q. No.		CO(s)	K - Level
26. (a)	Explain the components of Environment சுற்றுச் சூழலின் கூறுகள் பற்றி விளக்குக	CO1	K1
	[OR]		
(b)	Explain Global warming and Ozone layer depletion. புவி வெப்பமடைதல் மற்றும் ஓசோன் அடுக்கு குறைவு ஆகியவற்றை விளக்குக	CO1	K1
27. (a)	Explain the energy flow in an ecosystem.	CO2	K2

ஒரு சுற்றுச்சூழல் அமைப்பில் ஆற்றல் ஒட்டத்தை விளக்கு.

[OR]

(b)	Explain the conservation of wild life. வனவிலங்குகளின் பாதுகாப்பை விளக்கு.	CO2	K2
28. (a)	Describe petroleum resource, oil shale and tar sands. பெட்ரோலியவள, எண்ணெய் ஷேல் மற்றும் தார் மணல் ஆகியவற்றை பற்றி விளக்குக.	CO3	K2

[OR]

(b)	Discuss the impacts of Coal mining and burning. நிலக்கரி சுரங்க மற்றும் அதன் எரியும் தாக்கங்களைப் பற்றி விளக்குக.	CO3	K2
29. (a)	Illustrate theEenvironmental laws in India to protect Environment. இந்தியாவில் சுற்றுச்சூழலைப் பாதுகாக்கும் சுற்றுச்சூழல் சட்டங்களை பற்றி விளக்குக	CO4	K2

[OR]

(b)	Enumerate the different types of natural resources. பல்வேறு வகையான இயற்கை வளங்களை பற்றி கணக்கிடுக.	CO4	K2
30. (a)	Explain the following terms. 1. Gender identity 2. Gender roles 3. Gender discrimination 4. Gender inequality பின்வரும் விதிமுறைகளை விளக்குக. 1. பாலின அடையாளம் 2. பாலின பாத்திரங்கள் 3. பாலின பாகுபாடு 4. பாலின சமத்துவமின்மை	CO5	K2

[OR]

(b)	Write down three of the examples of gender inequality and gender discrimination you come across in your daily life. உங்கள் அன்றாட வாழ்க்கையில் நீங்கள் காணும் பாலின சமத்துவமின்மை மற்றும் பாலின பாகுபாட்டின் மூன்று எடுத்துக்காட்டுகளை எழுதுக.	CO5	K2

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Reg. No.: | | | | | | | | | | |

G.T.N. ARTS COLLEGE(AUTONOMOUS)

(Affiliated to Madurai Kamaraj University || Accredited with 'B' Grade by NAAC)

END SEMESTER EXAMINATION - APRIL - 2021

(UNDER OUTCOME BASED EDUCATION (OBE) PATTERN)

Programme : ALL UG | **Date : 24.06.2021**

Course Code : 20UCHN21 | **Time : 10:00 AM - 1:00 PM**

Course Title : Chemistry of Drugs | **Max. Marks : 100**

Q. No.	SECTION - A (20 * 1 = 20 Marks) Answer ALL Questions	CO(s)	K - Level
1.	Iron tonic is used to cure _____	CO1	K1
	1.Whooping cough 2.Cholera		
	3.TB 4.Anaemia		
2.	The method used to determine abnormalities in bone structure is called _____	CO1	K2
	1.Chemotherapy 2.Radiography		
	3.Pharmacology 4.Toxicology		
3.	Rose Bengal is the diagnostic agent used to detect _____	CO1	K1
	1.Stones in gall bladder 2.Lesions in cornea		
	3.Functional capacity of liver 4.Malfunction of kidney		
4.	Micro-organisms with diameter ranging from 20-300 nm are called as _____	CO1	K2
	1.Bacteria 2.Virus		
	3.Protozoa 4.Fungi		
5.	Terramycin belongs to _____ type.	CO2	K2
	1.Penicillin 2.Zeomycin		
	3.Tetracycline 4.Vancomycin		
6.	The side effect caused by Codeine is_____	CO2	K1
	1.Nausea 2.Constipation		
	3.Sedation 4.Dryness of mouth		
7.	Which antibiotic acts by inhibiting the function of cell membrane?	CO2	K2
	1.Penicillins 2.Actinomycin D		
	3.Polymyxin 4.Erythromycin		
8.	Streptomycin is effective against _____	CO2	K1
	1.Gram-Positive bacteria 2.Gram-negative bacteria		
	3.Virus 4.Fungi		
9.	The drugs do not produce significant depression of the CNS are _____	CO3	K2
	1.Analgesic 2.Antipyretic		
	3.Narcotics 4.Anti-inflammatory		

10.	Which of the following is a narcotic analgesic? 1.Ibuprofen 2.Aspirin 3.Paracetamol 4.Morphine	CO3	K1
11.	The chemical name of aspirin is _____ 1.Methyl salicylate 2.Ethyl salicylate 3.2-hydroxybenzoic acid 4.2-acetoxybenzoic acid	CO3	K2
12.	A drug which acts as antipyretic as analgesic is _____ 1.Chloroquin 2.Penicillin 3.Chlorodiazeposide 4.4-acetamidophenol	CO3	K1
13.	Alkaloid used as an anaesthetic is 1.Nicotine 2.Morphine 3.Cocaine 4.Quinine	CO4	K2
14.	Which of the following is a poor surface anaesthetic? 1.Procaine 2.Lidocaine 3.Tetracaine 4.Benoxinate	CO4	K2
15.	Which of the following is a intravenous anaesthetic 1.Vinyl ether 2.Halothane 3.Chloroform 4.Thiopental	CO4	K1
16.	Which one of the following is not an ester local anaesthetic? 1.Cocaine 2.Procaine 3.Lignocaine 4.Benzocaine	CO4	K1
17.	Vitamin used to treat megaloblastic anaemia is _____ 1.Vitamin D 2.Vitamin C 3.Vitamin B12 4.Vitamin K	CO5	K1
18.	Thiamine is vitamin 1.B1 2.B2 3.B6 4.B12	CO5	K2
19.	The total number of essential vitamins required for the proper functioning of the human body is _____ 1.12 2.13 3.15 4.22	CO5	K1
20.	_____ helps in the regulation of blood volume and blood pressure. 1.Iron 2.Iodine 3.Sodium 4.Phosphorous	CO5	K2

Q. No.	SECTION - B (5 * 6 = 30 Marks) Answer ALL Questions	CO(s)	K-Level
21. (a)	Write a notes on Pharmacology and Pharmacophore	CO1	K1
	[OR]		

(b)	Outline the chemicals used for diagnosis of impaired function of body organs.	CO1	K1
22. (a)	What are antibiotics? How are they classified? Give one example for each type.	CO2	K1
	[OR]		
(b)	Write briefly the mode of drug action of antibiotics	CO2	K1
23. (a)	Explain the mechanism of analgesic and antipyretic action of drugs	CO3	K2
	[OR]		
(b)	What are Analgesics? How are they classified? Give example for each class.	CO3	K2
24. (a)	What are anaesthetics? On what basis are anaesthetics classified? Give example for each class	CO4	K2
	[OR]		
(b)	Define Local anaesthetics and General anaesthetics with suitable examples	CO4	K2
25. (a)	Enlist vitamins and its deficiency of diseases.	CO144	K2
	[OR]		
(b)	What is Wilson's disease? Discuss in detail	CO5	K2

Q. No.	**SECTION - C (5 * 10 = 50 Marks)** **Answer ALL Questions**	**CO(s)**	**K - Level**
26. (a)	Discuss the following with suitable examples a) Drugs used in preventing diseases (5 marks) b) Drugs used for cure of diseases. (5 marks)	CO1	K2
	[OR]		
(b)	Define bacteria. How are Gram – Positive and Gram – negative bacteria identified? Explain in detail with examples.	CO1	K2
27. (a)	What is Streptomycin? Explain the therapeutic uses and side effects of Streptomycin	CO2	K3
	[OR]		
(b)	Explain the therapeutic uses and side effects of Erythromycin	CO2	K2
28. (a)	What is Paracetamol? Draw the structure of paracetamol and Mention their therapeutic functions	CO3	K2
	[OR]		
(b)	Explain the therapeutic functions of Ibuprofen. Draw the structure of Ibuprofen	CO3	K2
29. (a)	Define Natural local anaesthetics. Draw the structure and write the therapeutic uses of Cocaine.	CO4	K2
	[OR]		
(b)	Draw the structures and discuss the anaesthetic effects of the following a) Thiopentone sodium (Thiopental) (5marks) b) Methohexitone sodium (5 marks)	CO4	K3
30. (a)	Define vitamins. Describe Fat – soluble vitamins in detail	CO5	K3
	[OR]		
(b)	Write notes on the following factor a) Antirachitic (2 marks) b) Antiberiberi (2 marks) c) Antidermatitis (2 marks) d) Antipellagra (2 marks) e) Antiscorbutic (2 marks)	CO5	K2

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Reg. No.: | | | | | | | | | |

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END SEMESTER EXAMINATION - APRIL - 2021

(UNDER OUTCOME BASED EDUCATION (OBE) PATTERN)

Programme : B.Sc. Zoology
Course Code : 20UCHA21
Course Title : Inorganic and Physical Chemistry

Date : 28.06.2021
Time : 10:00 AM - 1:00 PM
Max. Marks : 100

Q. No.	SECTION - A (20 * 1 = 20 Marks) Answer ALL Questions	CO(s)	K - Level
1.	..... is the future fuel of the world. 1.petrol 2.gasohol 3.hydrogen 4.alcohol	CO1	K2
2.	Which of the following statements is not correct with respect to H2O2? 1.in the manufacture of heavy water 2.as a bleaching agent 3.as an antiseptic 4.as an oxidising agent	CO1	K1
3.	Loss of hydrogen atoms in a reaction is called 1.hydrogenation 2.oxidation 3.reduction 4.sublimation	CO1	K2
4.	Which of the following statement is false 1.H_2O_2 is oxidising 2.H_2O_2 is reducing 3.H_2O_2 is basic 4.H_2O_2 is acidic	CO1	K1
5.	Which scientist discovered Radio-activity 1.J.J. Thomson 2.Madame Curie 3.Henry Becquerel 4.Rutherford	CO2	K1
6.	Stable nuclei are those whose n/p ratio is 1.> 1 2.< 1 3.2 4.= 1	CO2	K2
7.	Nuclear fission reactions are 1.chain reactions 2.thermal reactions 3.Photodisintegrations 4.Uncontrollable	CO2	K1
8.	The average life period of a radioactive element is	CO2	K2

2.144 T

1.1.44 T

4.14.4 T

3.0.144 T

9.	The term used to determine the protecting power of a lyophilic colloid is……		CO3	K2
	1.oxidation number	2.coagulation value		
	3.gold number	4.Critical micelle concentration		
10.	Which of the following forms a colloidal solution in water?		CO3	K2
	1.Sugar	2.Salt		
	3.Barium nitrate	4.Starch		
11.	Which substance is added to water containing suspended impurities to coagulate the suspended impurities and make water fit for drinking purpose?		CO3	K1
	1.milk	2.milk of magnesia		
	3.KCl	4.Alum		
12.	Which law is represented by the following expression? For the positive colloid, the order of precipitation is phosphate ion>sulphate ion>chloride ion?		CO3	K1
	1.Brownian	2.Electrical movement		
	3.Hardy Schulze	4.Tyndal effect		
13.	Mixture of ice and water form a		CO4	K2
	1.closed system	2.open system		
	3.isolated system	4.heterogeneous system		
14.	Which of the following is not the intensive property		CO4	K2
	1.pressure	2.temperature		
	3.density	4.heat		
15.	Heat and work are		CO4	K1
	1.state functions	2.extensive properties		
	3.path functions	4.intensive properties		
16.	Zeroth law of thermodynamics		CO4	K2
	1.deals with mass and energy	2.deals with reversibility and irreversibility of process		
	3.states that if two systems are both in equilibrium with a third system, they are in thermal equilibrium with each other	4.deals with heat engines		
17.	The rate constant of a reaction depends upon		CO5	K1
	1.temperature of the reaction	2.extent of the reaction		
	3.concentration of the reactants	4.the time of completion of reaction		
18.	The unit of rate and rate constant are same for a		CO5	K2
	1.zero order reaction	2.first order reaction		
	3.second order reaction	4.third order reaction		
19.	The order of reaction is decided by		CO5	K1

1 temperature

2.mechanism of reaction as well as relative concentration of reactants

3.molecularity

4.pressure

20. In pseudo unimolecular reactions CO5 K2

1.both the reactants are present in low concentration

2.both the reactants are present in same concentration

3.one of the reactant is present in excess

4.one of the reactant is non-reactive

Q. No.	SECTION - B (5 * 6 = 30 Marks) Answer ALL Questions	CO(s)	K - Level
21. (a)	Distinguish between hydrogen and deuterium.	CO1	K2
	[OR]		
(b)	What is heavy hydrogen? Explain the preparation of heavy hydrogen by auto-oxidation.	CO1	K2
22. (a)	Explain the radiocarbon dating.	CO2	K2
	[OR]		
(b)	Calculate the binding energy per nucleon of oxygen atom $_8O^{16}$ which has a mass of 15.9949 a.m.u. mass of neutron is 1.008665 a.m.u. mass of proton is 1.007277 a.m.u. mass of electron is 0.0005486 a.m.u.	CO2	K2
23. (a)	Explain the optical and electrical properties of sols.	CO3	K2
	[OR]		
(b)	Relate types of emulsions with emulsifiers.	CO3	K2
24. (a)	State and Explain the first law of thermodynamics – give the mathematical formulation of first law.	CO4	K2
	[OR]		
(b)	Distinguish between reversible process and irreversible process.	CO4	K2
25. (a)	Prove that the half life period of a first order reaction is independent of the initial concentration of the reactant.	CO5	K2
	[OR]		
(b)	Explain the following i)active mass (2 marks) ii)rate (2 marks) iii) rate law (2 marks)	CO5	K2

Q. No.	SECTION - C (5 * 10 = 50 Marks) Answer ALL Questions	CO(s)	K - Level
26. (a)	Illustrate the structure of hydrogen peroxide.	CO1	K2
	[OR]		
(b)	Explain the estimation of H_2O_2 permanganimetric method.	CO1	K2
27. (a)	Write notes on: i)Nuclear fission (5 marks) ii)Application of nuclear fission (5 marks)	CO2	K2
	[OR]		
(b)	The C^{14} to C^{12} ratio of an animal fossil recovered in an archeological excavation is 30% that of the atmosphere. Calculate the age of the animal fossile, given that half-life of C^{14} = 5760 years.	CO2	K2

28. (a)	How would you classify emulsions and explain emulsifiers with examples?	CO3	K2
	[OR]		
(b)	Define gels. Interpret its preparation and properties.	CO3	K2
29. (a)	Explain various processes in thermodynamics systems.	CO4	K3
	[OR]		
(b)	Describe the relationship between free energy and spontaneity.	CO4	K3
30. (a)	Write notes on i)Carbon Dating (5 marks) ii)ii) Lineweaver Burk plot. (5 marks)	CO5	K2
	[OR]		
(b)	Derive an expression for the rate constant of a first order reaction. Show that half-life period is independent of initial concentration.	CO5	K3

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Reg. No:

G.T.N. ARTS COLLEGE (AUTONOMOUS)

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END SEMESTER EXAMINATION – APRIL 2020

Programme : B.Sc., Chemistry | **Date: 18.6.2021**

Course Code: 17UCHC41 | **Time: 2 pm. to 5 pm.**

Course Title : Inorganic Chemistry – II | **Max. Marks :75**

SECTION – A [10 X 1 = 10]

Answer ALL the Questions.

Choose the Correct Answer.

1. The metal that cannot be obtained by electrolysis of an aqueous solution of its salts is _____.

   [a] Cu [b] Cr

   [c] Ag [d] Ca

2. Sulphide ores are common for metals _____.

   [a] Ag, Mg and Pb [b] Ag, Cu and Pb

   [c] Ag, Cu and Sn [d] Al, Cu and Pb

3. The following ceramic product is mostly used in pigment in paints

   [a] ThO_2 [b] V_2O_5

   [c] TiO_2 [d] $(NH_4)_2MoO_4$

4. The oxidation state of thorium in ThO_2 is _____

   [a] +2 [b] -2

   [c] +4 [d] -4

SECTION – C [3 X 10 = 30]

Answer Any THREE Questions.

16. What are the various ores of platinum? How is platinum is extracted from its ores?
17. Describe the preparation, properties and uses of chloroplatinic acid
18. What are silicates? Discuss the various types of silicates
19. Compare crystal field theory of octahedral complexes and square planar complexes
20. How will you extract lanthanides from monazite sand?

[a] Metal [b] Non-metal

[c] Metalloid [d] Transition metal

6. White lead is a _____.

[a] Pure form of lead

[b] Lead carbonate

[c] Lead hydroxide

[d] Mixture of lead carbonate and lead hydroxide

7. An example of a chelating ligand is_____.

[a] Chloro [b] Bromo

[c] en [d] NO^{2-}

8. The type of isomerism found in the complexes $[Co(NO_2)(NH_3)_5]\ SO_4$ and $[Co(SO_4)(NH_3)_5]\ NO_2$.

[a] Coordination isomerism [b] Ionization isomerism

[c] Linkage isomerism [d] Hydrate isomerism

9. Larger number of oxidation states are exhibited by the actinoids than those by the lanthanoids. This is because _____.

[a] 4f orbitals more diffused than the 5f orbitals

[b] Lesser energy difference between 5f and 6d than between 4f and 5d orbitals

[c] More energy difference between 5f and 6d than between 4f and 5d orbitals

[d] More reactive nature of the actinoids than the lanthanoids

[a] Yb^{2+} [b] Ce^{2+}

[c] Sm^{2+} [d] Eu^{2+}

SECTION – B [5 X 7 = 35]

Answer ALL the Questions.

11. a) Briefly describe the mineral wealth of India

[OR]

b) How refining of metals is carried out by van Arkel and de Boer process?

12. a) How will you prepare V_2O_5? List out the chemical properties of V_2O_5

[OR]

b) Write the preparation and properties of sodium cobaltinitrite

13. a) Compare and contrast carbon and silicon

[OR]

b) Describe the preparation and properties of hydrazine

14. a) Illustrate low spin and high spin complexes

[OR]

b) Discuss the geometrical isomerism of coordination complexes

15. a) Compare and contrast lanthanides and actinides

[OR]

b) Write down the name and electronic configuration of following elements Eu, Er, Yb, U, Am, Fm and Lr

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END SEMESTER EXAMINATION – APRIL 2021

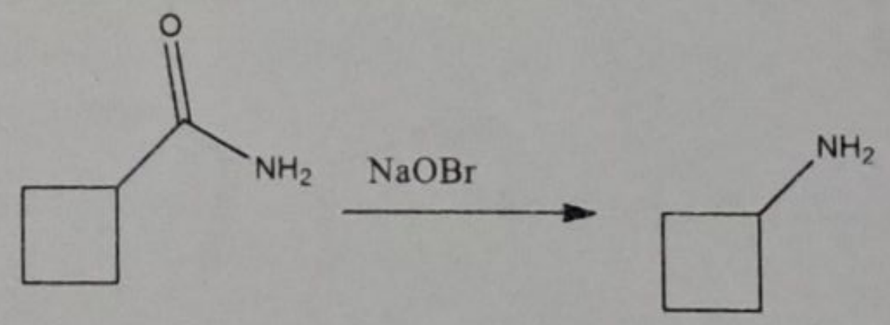
Programme: B.Sc., Chemistry | **Date: 17.06.2021**
Course Code: 17UCHC61 | **Time: 10 am. to 1 pm.**
Course Title : Organic Chemistry - III | **Max. Marks :75**

SECTION – A **[10 X 1 = 10]**

Answer ALL the Questions.

Choose the Correct Answer.

1. What is the name of the below rearrangement?



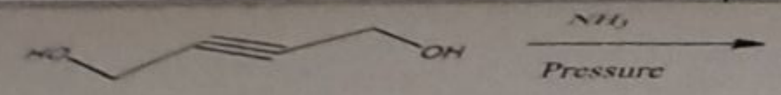
[a] Beckmann [b] Curtius

[c] Hofmann [d] Claisen

2. Which product is formed when neopentyl bromide subjected to neopentyl rearrangement followed by elimination?

[a] 2-methyl-2-butanol [b] 2-methyl-2-butene

[c] 2-methyl-2-butanal [d] 2-methyl-2-butane



[a] Furan [b] Pyrrole

[c] Pyridine [d] Quinoline

4. The starting material of isoquinoline synthesis through Pictet – Spengler method is _____.

[a] β – phenyl ethyl amine [b] Benzaldehyde

[c] 3,4-dihydro isoquinolne [d] β – phenyl ethyl alcohol

5. The basic λ max value for heteroannular diene is _____.

[a] 253 nm [b] 217 nm

[c] 280 nm [d] 230 nm

6. How many numbers of NMR signal observed for ethanol?

[a] 3 [b] 2

[c] 4 [d] 1

7. Which of the compound have greater Bayer strain angle deviation?

[a] cyclopentane [b] cyclopropane

[c] cyclobutane [d] cyclohexane

8. The dimension of sawhorse convention is _____.

[a] two [b] one

[c] three [d] both (a) & (b)

9. The colour developed in xanthoproteic test is _____

[a] blue [b] violet

[c] yellow [d] green

[a] Pyrimidine [b] Pyridine

[c] Quinoline [d] Pyrrole

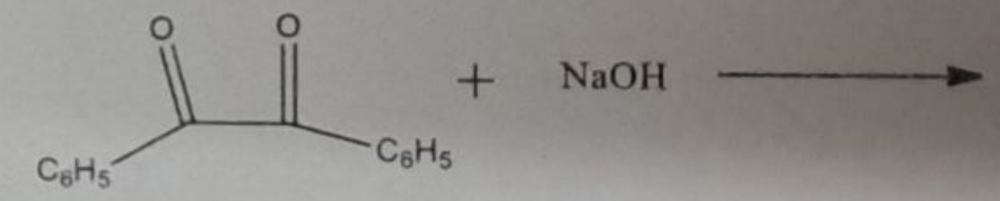
SECTION – B [5 X 7 = 35]

Answer ALL the Questions.

11. a) Explain the reaction and mechanism of Hofmann – Loeffler reaction.

[OR]

b) (i) Convert the below reaction with suitable mechanism: **(5 Marks)**



(ii) What is the product formed when allyl 2,6-dimethyl phenyl ether subjected to Claisen rearrangement? **(2 Marks)**

12. a) How can you prepare pyrrole from ammonium mucate, acetylene and furan? Give the reactions.

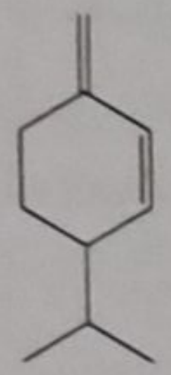
[OR]

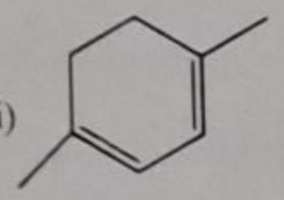
b) Electrophilic substitution of furan is preferentially at α or β position. Prove this statement.

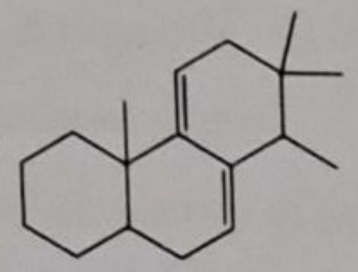
13. a) Explain the identification of various functional group of organic compound through IR spectroscopy.

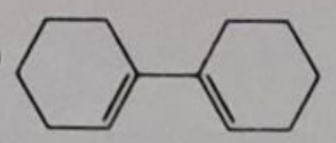
[OR]

b) Calculate the λ max value for the following compounds:

(i) 

(ii) 

(iii) 

(iv) 

$(1^1/_2 + 1^1/_2 + 2^1/_2 + 1^1/_2)$

14. a) Bring out the difference between configuration and conformation.

[OR]

b) Write note on Newman projection formula.

15. a) Classify proteins according to their functions with suitable examples.

[OR]

b) What is polynucleotide? What are the components are present in it? Explain the structure of nucleic acids.

SECTION – C **[3 X 10 = 30]**

Answer Any THREE Questions.

16. Discuss the reaction, mechanism and migratory aptitude of Pincol – Pinacolone rearrangement appropriate examples.

17. How can prepare the following?

(i) Furan from pentosan. (4)
(ii) Succinaldehyde dioxime from pyrrole (2)
(iii) Nicotinic acid from quinoline (4)

18. An organic compound having molecular formula C_7H_8O gives effervescence with sodium and can easily be oxidised to a crystalline compound (m.p. 122° C). It gives following spectroscopic data:

(i) UV spectrum : λmax =255 nm

(ii) IR : 3406, 3075, 1596 and 1460 cm^{-1}

(iii) NMR spectrum : δ = 7.26 singlet (5H);
δ = 4.52 singlet (2H);
δ = 3.80 singlet (1H);

Deduce the structure and interpret the above data.

19. Discuss the conformational analysis of mono substituted and un-substituted cyclohexane.

20. Discuss the various structures of proteins.

18. Write short notes on: i) Nickel – Cadmium cell ii) Fuel cell.

19. Explain: i) Phosphorescence ii) Fluorescence

20 Define a group. Explain the types and properties of groups.

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END SEMESTER EXAMINATION – APRIL 2021

Programme : B.Sc. Chemistry **Date: 18.6.2021**
Course Code: 17UCHC62 **Time: 10 am. to 1 pm.**
Course Title : Physical Chemistry III **Max. Marks :75**

SECTION – A **[10 X 1 = 10]**

Answer ALL the Questions.

Choose the Correct Answer.

1. The reciprocal of specific resistance is known as _____.

[a] Specific conductance [b] Molar conductance

[c] Equivalent conductance [d] Conductance

2. _____ is an example of strong electrolytes.

[a] NaOH [b] Amines

[c] Acids [d] NH_4OH

3. Calomel electrode is an example of _____.

[a] metal – metal ion electrode

[b] gas electrode

[c] metal – metal insoluble salt electrode

[d] oxidation reduction electrode

[a] 14 [b] 10^{-2}

[c] $1x10^{-14}$ [d] 100

5. Primary cells are _____.

[a] rechargeable [b] not rechargeable

[c] reversible [d] irreversible.

6. The electrolyte used in NICAD cell is _____.

[a] H_2SO_4 [b] KOH solution

[c] H_2O [d] NaOH solution

7. The emission of light by a firefly is due to _____.

[a] Fluorescence [b] Phosphorescence

[c] Photosensitisation [d] Chemiluminescence

8. The quantum yield of H_2-O_2 , photochemical reaction is_____.

[a] 1 [b] <1

[c] >1 [d] 0

9. H_2O molecule belongs to the point group_____.

[a] C_{2v} [b] C_{3v}

[c] D_{2h} [d] D_{2d}

10. Centre of inversion is absent in the point group_____.

[a] D_{2h} [b] D_{4h}

[c] T_d [d] D_{6h}

Answer ALL the Questions.

11. a) Define transport number. How will you determine by Hittorf's method?

[OR]

b) State Kohlrausch law. Discuss its applications.

12. a) Derive Nernst equation for measuring EMF of a cell.

[OR]

b) Write short notes on liquid junction potential.

13. a) What are primary and secondary cells? Give examples.

[OR]

b) How is the pH of a solution determined using glass electrode?

14. a) Distinguish between thermal and photochemical reactions.

[OR]

b) Discuss photosensitisation.

15. a) List the symmetry operations in water molecule.

[OR]

b) What is meant by Abelian group? Prove that C_{2v} is an Abelian group.

SECTION – C **[3 X 10 = 30]**

Answer Any THREE Questions.

16. Explain in detail on the applications of conductivity measurements.

17. Derive an expression for the emf of a concentration cell without transference.

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END SEMESTER EXAMINATION – APRIL 2021

Programme: B.Sc. Chemistry | **Date: 19.6.2021**
Course Code: 17UCHC63 | **Time: 10 am. to 1 pm.**
Course Title : Applied Chemistry | **Max. Marks :75**

SECTION – A **[10 X 1 = 10]**

Answer ALL the Questions.

Choose the Correct Answer.

1. Wastewater can become septic by the loss of _____.

[a] Dissolved oxygen content [b] Carbon content
[c] Organic compounds [d] Water content

2. Disinfection of water in our country is mainly done by _____.

[a] Oxygenation [b] Hydration
[c] Chlorination [d] Filtration

3. Natural rubber is a polymer of _____.

[a] neoprene [b] isoprene
[c] chloroprene [d] butadiene

4. 1,3-Butadine and styrene on polymerisation give _____.

[a] Buna~S [b] Terylene
[c] Teflon [d] Bakelite

[a] Retards setting action [b] Acts as flux

[c] Imparts colour [d] Reduce strength

6. Which of following metal salts imparts green colour in smokes?

[a] Calcium [b] Sodium

[c] Barium [d] Lithium

7. White pigment present in paint is _____.

[a] $CaCO_3$ [b] ZnO

[c] MgO [d] $NaCO_3$

8. What is the primary component of crude oil?

[a] Nitrogen [b] Carbon

[c] Hydrogen [d] Sulphur

9. Superphosphate is manufactured by reacting phosphate rock with

[a] Acetic acid [b] Sulphuric acid

[c] Hydrochloric acid [d] Nitric acid

10. Urea is a _____ fertiliser.

[a] nitrogenous [b] Potassic

[c] phosphatic [d] None of these

SECTION – B [5 X 7 = 35]

Answer ALL the Questions.

11. a) With neat diagram, explain the electrodialysis process.

[OR]

b) List out the characteristics of water as given by WHO.

polymerization.

[OR]

b) Discuss the preparation of blue, red and green inks.

13. a) Write short notes on coloured smoke.

[OR]

b) Describe the manufacture of ceramics.

14. a) Outline the source and composition of petroleum.

[OR]

b) Provide a detail account on synthetic gasoline.

15. a) Write short notes on mixed fertilizer.

[OR]

b) Explain the preparation and significance of i) Urea ii) Potassium nitrate.

SECTION – C [3 X 10 = 30]

Answer Any THREE Questions.

16. Discuss the various steps involved in municipal water treatment.
17. Write short notes on the following i) Dacron ii) Nyllon 66.
18. Explain the manufacturing of cement by wet process.
19. What are the components present in the paint? Explain their functions.
20. Highlight the role of various elements in plant growth.

19. a) Write the general properties of lipids.

b) Determine the estimation of Cholesterol in blood.

20. Explain various steps of automation of biochemical analysis.

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END SEMESTER EXAMINATION – APRIL 2021

Programme : B.Sc., Chemistry **Date:22.6.2021**
Course Code: 17UCHE61 **Time:10 am. to 1 pm.**
Course Title : Medical Laboratory Technology and Biochemistry **Max. Marks: 75**

SECTION – A **[10 X 1 = 10]**

Answer ALL the Questions.

Choose the Correct Answer.

1. Which bacteria appears purple-violet color after staining?

[a] Gram-positive

[b] Gram-negative

[c] Both Gram-positive and Gram-negative

[d] Neither Gram-positive nor Gram-negative

2. Which of the following statements is true of the Rh blood system?

[a] It was the first blood type system to be discovered

[b] It is more complex genetically than the ABO system

[c] There are 45 Rh blood types

[d] b and c

[a] 4.5-7.5
[c] 1.0-3.0
[d] 12-13

4. WBCs which release heparin and histamine _____.

[a] Basophils
[b] Neutrophils
[c] Monocytes
[d] Eosinophils

5. Carbohydrates are also known as_____

[a] Hydrates of carbon
[b] Carbonates
[c] Glucolipids
[d] Glycolipids

6. Which of the following is the example of oligosaccharide?

[a] starch
[b] trioses
[c] disaccharides
[d] gum

7. This is an example of derived lipids.

[a] Terpenes
[b] Steroids
[c] Carotenoids
[d] All of the above

8. Specific gravity of lipid is _____.

[a] 0.2
[b] 0.8
[c]1.0
[d] 1.5

9. The blank solution is used to set the colorimetry to _____.

[a] 0 absorbance
[b]10 absorbance
[c] 10 absorbance
[d] 50 absorbance

10. Bacillus thuringiensis is widely used as_____.

[a] Insecticide
[b] Weedicides
[c] Rodenticide
[d] None of the above

11. a) Explain the gram stains?

[OR]

b) Write the uses of Anticoagulants.

12. a) How will you determine total RBC count in Blood?

[OR]

b) Calculate ESR red blood cell examination for malaria parasites?

13. a) Write the glucose tolerance test.

[OR]

b) How carbohydrates are classified?

14. a) Explain the functions of lipids.

[OR]

b) Determine the triglycerides in blood.

15. a) Write the principles of Electrophoresis.

[OR]

b) Discuss the principles of Flame photometry.

SECTION – C

[3 X 10 = 30]

Answer Any THREE Questions.

16. How to transport blood after collecting?
17. Describe the physical and chemical examination of urine.
18. How will you test glucose from urine? How to interpret?

SECTION – C **[3 X 10 = 30]**

Answer Any THREE Questions.

16. Describe the following,

a) Redox titrations b) Complexometric titrations

17. Explain the principle and estimation of the following,

a) Glucose b) aniline

18. Elaborate the analytical applications of solvent extraction method.

19. Elucidate the principle and instrumentation of spectrophotometer.

20. Discuss the principle and instrumentation of TGA.

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END SEMESTER EXAMINATION – APRIL 2021

Programme : B.Sc. Chemistry **Date: 22.6.2021**
Course Code: 17UCHE62 **Time: 10 am. to 1 pm.**
Course Title : Analytical Chemistry **Max. Marks :75**

SECTION – A **[10 X 1 = 10]**

Answer ALL the Questions.

Choose the Correct Answer.

1. If 9.8 g of sulphuric acid is dissolved in 0.25 dm^3, then the normality of sulphuric acid is _____.

[a] 0.2 N [b] 0.4 N

[c] 0.8 N [d] 0.02 N

2. The indicator used in the titration of Ca^{2+} against EDTA is _____.

[a] Diphenyl amine [b] Bromothymol blue

[c] Eriochrome Black-T [d] Methylene blue

3. Ni^{2+} ion is estimated gravimetrically by using _____.

[a] EDTA [b] Oxime

[c] Ethylene diamine [d] DMG

4. Nessler's test is used to identify _____.

[a] Copper [b] Ammonium

[c] Lead [d] Zinc

[a] miscible

[b] immiscible

[c] may have mutual solubility to some extent

[d] none of these

6. Crystallization is used to purify _____.

[a] sugar only [b] fertilizers only

[c] salt from solution [d] sugar and fertilizers

7. In flame photometer, the intensity of filtered radiation of the flame is measured with _____.

[a] human eye [b] photoelectric detector

[c] galvanometer [d] any other devices

8. What does a spectrophotometer directly measure?

[a] The amount of a chemical in a material

[b] The amount of light that a substance absorbs

[c] What wavelength of light we are seeing

[d] The weight of a material

9. If successful potentiometric titration requires the selection of a proper _____.

[a] Reference electrode [b] Indicator electrode

[c] Hydrogen electrode [d] pH electrode

10. In thermogravimetric analysis, the property measured is _____.

[a] change of temperature [b] change in weight

[c] rate change of weight [d] heat evolved or absorbed

Answer ALL the Questions.

11. a) Explain the preparation of standard solution of acid and base titrations.

[OR]

b) Write note on the precipitation titrations.

12. a) How is lead estimated in gravimetrically?

[OR]

b) List and explain the interfering radicals and non-interfering radicals.

13. a) Explain about the steam distillation.

[OR]

b) Give a brief an account of fractional distillation.

14. a) Discuss the determination of chromium and iron ions using spectrophotometer.

[OR]

b) Explain the instrumentation of flame photometer.

15. a) Compare the characteristics of TGA and DTA.

[OR]

b) Explain the principle of DTA.

13. a) Write a note on Secularism.

அ) மதச்சார்பின்மை குறித்து ஒரு குறிப்பு எழுதுக.

[அல்லது]

b) Explain the importance of social justice.

ஆ) சமூக நீதியின் முக்கியத்துவத்தை விளக்குக.

14. a) Discuss the various aspects of team spirit.

அ) கூட்டு முயற்சியின் பல்வேறு அம்சங்களைப் பற்றி விவாதிக்கவும்.

[அல்லது]

b) Explain the terms 'Integrity' and 'Commitment'

ஆ) 'ஒருமைப்பாடு' மற்றும் 'அர்ப்பணிப்பு' என்ற சொற்களை விளக்குக.

15. a) Explain the important values created by family.

அ) குடும்பத்தால் உருவாக்கப்பட்ட முக்கியமான மதிப்பகளை விளக்குக.

[அல்லது]

b) Discuss about role models.

ஆ) முன்மாதிரிகள் பற்றி விவாதிக்கவும்.

SECTION – C [3 X 10 = 30]

Answer Any THREE Questions.

16. Explain the need for value education in detail.

மதிப்புக்கல்வியின் அவசியத்தைப் பற்றி விரிவாக விளக்குக.

17. Discuss about love and justice in Christianity.

கிறிஸ்தவத்தில் அன்பு மற்றும் நீதி பற்றி விவாதிக்கவும்.

18. Write in detail about human rights.

மனித உரிமைகள் பற்றி வரிவாக எழுதுக.

19. Explain the following professional values.

(a) Accountability (b) Willingness to Learn

பின்வரும் தொழில்முறை மதிப்புகளை விளக்குக.

(அ) பொறுப்புணர்ச்சி (ஆ) கற்றுக்கொள்ள விருப்பம்

20. Describe how values can be promoted through educational institutions.

கல்வி நிறுவனங்கள் மூலம் மதிப்புகளை எவ்வாறு மேம்படுத்தலாம் என்பதை விவரிக்கவும்.

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G.T.N. ARTS COLLEGE (AUTONOMOUS)

(Affiliated to Madurai Kamaraj University)

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END SEMESTER EXAMINATIONS – APRIL 2021

Programme: All UG Final Year Students **Date: 16.06.2021**

Course Code: 17UVEV61 **Time: 10 am – 1pm**

Course Title : Value Education **Max. Marks :75**

SECTION – A [10 X 1 = 10]

Answer ALL the Questions.

Choose the Correct Answer.

1. Taking care of one's body, so that it can take care of the person is called _____ values.

[a] Mental [b] Physical

[c] Social [d] Spiritual

ஒருவரின் உடலை கவனித்துக் கொள்வது மற்றும் அந்த நபரை கவனித்துக் கொள்வது ------ மதிப்புகள் என்று அழைக்கப்படுகிறது.

[அ] மனம் [ஆ] உடல்

[இ] சமூக [ஈ] ஆன்மீக

2. _____ means working without having command from anyone.

[a] Self confidence [b] Self Discipline

[c] Self-initiative [d] Empathy

யாரிடமிருந்தும் கட்டளை இல்லாமல் வேலை செய்வது ------- என்பதாகும்.

[அ] தன்னம்பிக்கை [ஆ] சுய ஒழுக்கம்

[இ] சுய முயற்சி [ஈ] பச்சாதாபம்

3. _____ is the retirement stage in the life of a Hindu.

[a] Vanaprastha [b] Brahmacharya

[c] Grihastha [d] Sanyasa

--- என்பது ஒரு இந்து வாழ்க்கையின் ஒய்வுதிய நிலையாகும்.

[அ] வனப்பிரஸ்தா [ஆ] பிரம்மச்சாரியா

[இ] கிரஹஸ்தா [ஈ] சன்யாசா

4. _____ is the holy scripture of Christianity.

[a] Quran [b] Bagavad Gita

[c] Adi-Granth [d] Bible

கிறிஸ்தவத்தின் புனித நூல் ------ ஆகும்.

[அ] குர்ஆன் [ஆ] பகவத் கீதை

[இ] ஆதி – கிரந்த் [ஈ] பைபிள்

5. ____ is a government of the people, by the people and for the people.

[a] Secularism [b] Socialism

[c] Democracy [d] Gender Justice

---- என்பது மக்களின், மக்களால், மக்களுக்காக அமைக்கப்பட்ட அரசாங்கமாகும்.

[அ] மதச்சார்பின்மை [ஆ] பொது உடைமை

[இ] ஜனநாயகம் [ஈ] பாலின நீதி

6. Our Constitution guarantees _____ fundamental rights.

[a] five [b] six

[c] seven [d] eight

நம் அரசியலமைப்பு -------- அடிப்படை உரிமைகளுக்கு உத்தவாதம் அளிக்கிறது.

[அ] ஐந்து [ஆ] ஆறு

[இ] ஏழு [ஈ] எட்டு

7. ___ is the state or quality of being adequately or well qualified.

[a] Competence [b] Team spirit

[c] Accountability [d] Honesty

----- என்பது போதுமான அல்லது நல்ல தகுதி வாய்ந்த தரமாகும்.

[அ] திறன் [ஆ] கூட்டு முயற்சி

[இ] பொறுப்புணர்ச்சி [ஈ] நேர்மை

8. Who should follow the professional codes of conduct evolved by the Bar council?

[a] Teacher [b] Doctor

[c] Accountants [d] Lawyer

வழக்குரைஞர் கழகம் உருவாக்கிய தொழில் முறை நடத்தை நெறிமுறைகளை யார் பின்பற்ற வேண்டும்?

[அ] ஆசிரியர் [ஆ] மருத்துவர்

[இ] கணக்காளர்கள் [ஈ] வழக்கறிஞர்

9. ____ is one in which parents and their unmarried sons and daughters live together?

[a] Nuclear family [b] Extended family

[c] Joint family [d] Large Joint family

------ என்பது பெற்றோர்களும் அவர்களுடைய திருமணமாகாத மகன்களும் மகள்களும் ஒன்றாக வாழ்வதாகும்.

[அ] தனிக்குடும்பம் [ஆ] நீட்டிக்கப்பட்ட குடும்பம்

[இ] கூட்டுக்குடும்பம் [ஈ] பெரிய கூட்டுக்குடும்பம்

10. Who is the founder of Microsoft?

[a] Narayan Murthy [b] Bill Gates

[c] Premji [d] Steve Jobs

மைக்ரோசாப்டின் நிறுவனர் யார்?

[அ] நாராயண் மூர்த்தி [ஆ] பில்கேட்ஸ்

[இ] பிரேம்ஜி [ஈ] ஸ்டீவ் ஜாப்ஸ்

SECTION – B [5 X 7 = 35]

Answer ALL the Questions.

11. a) Discuss the significance of values.

அ) மதிப்புகளின் முக்கியத்துவம் பற்றி விவாதிக்கவும்.

[அல்லது]

b) Write a note on self confidence.

ஆ) தன்னம்பிக்கை குறித்து ஒரு குறிப்பு எழுதுக.

12. a) Explain the five principles of Islam.

அ) இஸ்லாமின் ஐந்து கொள்கைகளை விளக்குக.

[அல்லது]

b) What are the duties of a Sikh?

ஆ) ஒரு சீக்கியரின் கடமைகள் என்ன?

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END SEMESTER EXAMINATIONS - APRIL 2021

Programme: B. Sc Chemistry | **Date: 14.07.2021**
Course Code: 17CCHE61 | **Time: 10am – 1pm**
Course Title: Diary Technology - II | **Max Marks: 75**

SECTION – A [5 X 2 = 10]

Answer ALL the Questions.

1. What is milk sugar?
2. What is the role of flow diversion valve?
3. Define fermentation.
4. What is evaporation?
5. Name the types of milk borne diseases.

SECTION – B [5 X 7 = 35]

Answer ALL the Questions.

6. a) Write a short note on homogenization.

[OR]

b) Write the importance of standardization of milk.

7. a) Give an account on plate heat exchange process.

[OR]

b) Differentiate between pasteurisation and sterilization.

8. a) Write in detail about production of Dahi.

[OR]

b) Discuss the various methods involved in the manufacturing go Ghee.

9. a) Short note on vitamin in milk.

[OR]

b) Describe about importance of milk drying.

10. a) Write in detail about CIP.

[OR]

b) Write an essay on food safety and quality.

SECTION – C [3 X 10 = 30]

Answer Any THREE Questions.

11. Explain about milk pasteurisation.
12. Discuss the mechanism of drum drier for milk drying.
13. Write the method of manufacture of flavoured milk.
14. Write the physicochemical properties of dried milk.
15. Explain about HACCP system for dairy industry.

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END SEMESTER EXAMINATION – APRIL 2021

Programme : B.Sc. Physics/Zoology **Date: 21.6.2021**

Course Code: 17UCHA21 **Time: 2 pm. to 5 pm.**

Course Title : Organic and Physical Chemistry **Max. Marks :75**

SECTION – A [10 X 1 = 10]

Answer ALL the Questions.

Choose the Correct Answer.

1. Nuclear fusion occurs only at very high _____.

[a] Pressure [b] Temperature

[c] Constriction [d] Mars

2. In carbon dating, the isotope of carbon used is _____.

[a] C - 12 [b] C - 13

[c] C - 14 [d] C - 15

3. Which one of the following is a disaccharide?

[a] Fructose [b] Sucrose

[c] Starch [d] Cellulose

4. The monosaccharide obtained by hydrolysis of starch produces _____.

[a] D – Glucose [b] Maltose

[c] D – Galactose [d] D – Ribose

5. A carbon atom attached to four different groups is called as _____.

[a] Symmetric [b] Chiral

[c] Racemization [d] Resolution

6. Enantiomers have _____.

[a] Same melting points [b] Centre of symmetry

[c] Object mirror images [d] Identical structure

7. Monomer of a protein is _____.

[a] Peptide [b] Amino acid

[c] Dicarboxylic acid [d] Phthalic acid

8. The protein which controls the amount of sugar in blood is _____.

[a] Ptyalin [b] Oxytocin

[c] Hemoglobin [d] Insulin

9. Which one of the following is a chromophore?

[a] $-NO_2$ [b] $-SO_3H$

[c] - OH [d] - COOH

10. Bismaric brown is an example for _____.

[a] Indigo dye [b] 920 dye

[c] Vat dye [d] Mordant dye

SECTION – B **[5 X 7 = 35]**

Answer ALL the Questions.

11. a) What is meant by mass defect? Explain.

[OR]

b) Discuss group displacement law.

12. a) How will you convert

i) Glucose ⟶ Fructose

ii) Fructose ⟶ Glucose

[OR]

b) Bring out the differences between α and β – amylose.

13. a) Explain enantiomers and diastereoisomers.

[OR]

b) Explain the geometrical isomerism of maleic acid and fumaric acid.

14. a) What are amino acids? Discuss the isoelectric point of amino acids.

[OR]

b) Bring out the general synthetic method of peptides.

15. a) Give a method of preparation for methyl orange and indigo.

[OR]

b) Write the preparation and uses of malachite green.

SECTION – C **[3 X 10 = 30]**

Answer Any THREE Questions.

16. i) Write note on nuclear fusion.

ii) Write the application of radioisotopes in agriculture and industry.

17. i) What are carbohydrates? How are they classified?

ii) Distinguish between glucose and sucrose.

18. i) Explain any two methods of resolution of racemic mixture.

ii) What is racemization? Explain.

19. Describe the major classification and biological functions of proteins.

20. Narrate the theories of color and constitution of dyes.

SECTION – C [3 X 10 = 30]

Answer Any THREE Questions.

16. What is meant by antibiotics? Discuss the biological functions of penicillin and streptomycin.
17. Distinguish between reversible and irreversible process. How natural processes are irreversible? Give reasons.
18. What are the factors affecting the rate of reaction? Describe the effect of temperature on the rate of reaction.
19. Derive the Nernst equation for electrode potential.
20. Define chemical shift. Explain the NMR spectrum of ethanol.

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END SEMESTER EXAMINATION – APRIL 2021

Programme: B.Sc. Zoology /Physics **Date: 21.6.2021**
Course Code: 17UCHA41 **Time: 10 am. to 1 pm.**
Course Title : Organic and Physical Chemistry **Max. Marks :75**

SECTION – A [10 X 1 = 10]

Answer ALL the Questions.

Choose the Correct Answer.

1. The alkaloid isolated from opium is _____.

   [a] Piperine [b] Nicotine
   [c] Papvarien [d] Morphine

2. Vitamin D is also known as _____.

   [a] Growth vitamin [b] Ascorbic acid
   [c] Reproductive vitamin [d] Sunshine vitamin

3. The heat content of a system is called _____.

   [a] Enthalpy [b] Free energy
   [c] Entropy [d] Internal Energy

4. Molar heat capacity of water in equilibrium with ice at constant pressure is _____.

   [a] Zero [b] Infinite
   [c] 40.45 JK^{-1} mol^{-1} [d] 75.48 JK^{-1} mol^{-1}

5. *Of the following, the rate of the reaction is not depending* _____.

[a] *concentration* [b] *temperature*

[c] *catalyst* [d] *solvent*

6. Unit of first order rate constant is _____.

[a] S^{-1} mol^{-1} [b] mol d m^{-3} s^{-1}

[c] S^{-1} [d] mol $^{1/2}$ dm $^{-3/2}$ S^{-1}

7. The electrode potential of SHE is _____.

[a] 1 [b] 2

[c] 1.018 [d] Zero

8. The difference of potentials of two electrodes of a galvanic cell is called _____.

[a] Potential difference [b] Ionic difference

[c] EMF [d] Electrode difference

9. Which of the following does not show IR spectrum?

[a] C_2H_2 [b] HF

[c] NO [d] OO

10. In which of the following region NMR spectra are obtained?

[a] Microwave [b] Radio wave

[c] Infrared [d] UV -Visible

Answer ALL the Questions.

11. a) Describe the pharmacological properties of nicotine.

[OR]

b) What is the chemical name of vitamin B_6? Mention its sources, functions and deficiency diseases.

12. a) How do you classify the thermodynamic property of a system? Ex the intensive and extensive properties.

[OR]

b) State the term heat capacity. Give the relation between C_p and C_v.

13. a) What is rate of reaction? Bring out the difference between order and molecularity of a reaction.

[OR]

b) Define the term enzyme catalysis. Illustrate the Michaelis Menten mechanism of enzyme catalysis.

14. a) Sketch and explain the Faraday's law of electrolysis.

[OR]

b) How do you measure the pH of a solution by using glass electrode? Illustrate with a neat diagram.

15. a) Write a short note on basic principle of IR spectroscopy. How do you identify the ethanol by IR spectra?

[OR]

b) Explain the basic principle and instrumentation of proton NMR spectroscopy.