(3 Hours) **[Total Marks: 75]**

N.B.: 1. All questions are compulsory
2. Figures to right indicate full marks

Q. 1 Choose appropriate option for following multiple choice-based questions. 20

1 The amino acid, which contains sulphur is_____.

a Methionine
b Serine
c Glycine
d Leucine

2 What is the standard free energy change of ATP?

a Small and negative
b Large and positive
c Large and negative
d Small and positive

3 A reaction, which proceeds with net release of free energy and is spontaneous, is called as _____.

a Endergonic reaction
b Exergonic reaction
c Endothermic reaction
d Exothermic reaction

4 Which of the following is correct about Krebs Cycle?

a Pyruvate condenses with Oxaloacetate to form Citrate
b Alpha ketoglutarate is a five Carbon compound
c Oxidative Phosphorylation occurs in the cytoplasm only
d Krebs cycle can operate in anaerobic condition

5 Gluconeogenesis involves conversion of _____.

a Glucose-6-Phosphate to Fructose-6-Phosphate
b Pyruvate to Lactate
c Pyruvate to Acetyl CoA
d Oxaloacetate to Phosphoenolpyruvate

6 Which of the following is a debranching enzyme?

a Glycogen synthetase
b Glucose-6-phosphatase
c Amylo 1,6 glucosidase
d Amylo 1,4-1,6 transglycosylase

7 Final acceptor of electrons in ETC is
a Cyt c
b Oxygen
c $FADH_2$
d CoQ

8 Pyruvate is converted to acetyl CoA by _____.
a Oxidative Phosphorylation
b Oxidative decarboxylation
c Oxidative carboxylation
d Oxidative dephosphorylation

9 Number of ATP formed by oxidation of one molecule of palmitic acid is
a 146
b 106
c 134
d 34

10 Conversion of acetoacetate to acetone is the step involved in
a ketogenesis
b urea cycle
c glycolysis
d HMP shunt

11 Argininosuccinic aciduria is a recessive disease due to lack of ____enzyme.
a argininosuccinate lyase
b argininosuccinase
c arginase
d arginine transcarbomylase

12 Dopamine is synthesized from_____.
a tyrosine
b tryptophan
c threonine
d lysine

13 Hydrolases enzymes are involved in _____.
a Oxidation reduction reaction
b Hydrolysis reaction
c Isomerization reaction
d Addition or removal group reaction

14 If K_m changes and V_{max} remains the same. What is the type of enzyme inhibition?

a Competitive Inhibition
b Noncompetitive Inhibition
c Uncompetitive inhibition
d Suicide Inhibition

15 Puromycin is a drug that interferes with _____.

a Protein synthesis
b Nucleotide synthesis
c DNA replication
d RNA synthesis

16 Genetic lack of _____ causes Lesch Nyhan syndrome.

a Hypoxanthine guanine phosphoribosyl transferase
b Adenine phosphoribosyl transferase
c Adenine deaminase
d Guanine deaminase

17 AUG serves as

a Start codon
b Non-sense codon
c Stop codon
d Anticodon

18 In DNA replication _____ is responsible for removal of supercoiling as the replication fork moves ahead.

a Topoisomerase
b Primase
c Ligase
d Helicase

19 The role of sigma factor present in bacterial RNA polymerase is

a Positioning of RNA polymerase correctly on DNA template
b Catalyzing RNA synthesis
c Terminating RNA synthesis
d Separating the two strands of DNA

20 Which enzyme is a part of urea cycle?

a ornithine transcarbamoylase
b Asparginase
c Glutamate synthase
d gluatamine transaminase

Q. 2 Answer any two questions. **20**

a i) Elaborate in detail the regulatory steps of glycolysis with respect to name and structure of intermediates, enzymes and cofactors. **6**

ii) Discuss ketogenesis w.r.t reactions and regulation. **4**

b i) Outline reactions involved in conversion of AMP to IMP and write a note on salvage pathway for purines. **6**

ii) Explain in brief about initiation and elongation steps in prokaryotic replication. **4**

c i) Discuss Michaelis Menten and line Weaver Burk plot with respect to enzyme inhibitors. **6**

ii) Explain the terms i) spontaneous reaction, ii) activation energy iii) ΔG iv) Entropy **4**

Q. 3 Answer any seven questions **35**

i) Write a note on secondary structure of proteins. Draw structure of Lecithin.

ii) Classify carbohydrates based on their structure and chemical nature. Give structure of lactose.

iii) Give the names and structures of substrate and product for the reactions catalysed by following enzymes. a) Lactonase, b) Pyruvate kinase.

iv) Explain various steps involved in glycogenolysis.

v) Write a note on carnitine shuttle. Explain the energetics for β oxidation of palmitic acid

vi) Explain β oxidation of palmitic acid with energetics.

vii) Explain the biosynthesis of adrenaline with its significance.

viii) Outline the synthesis of CTP from orotate. Write a note on treatment of gout.

ix) Discuss the IUB classification of enzymes with suitable examples.

Time: 3 Hours **Marks: 75**

Q. I Choose the appropriate option for the following multiple choice based questions. **(20M)**

1 Coulter counter is used to determine
a Number of particles
b Particle volume
c Particle interaction
d Viscosity

2 Andreason Pipette is widely used method to determine particle size distribution by
a Sedimentation method
b Microscopy method
c Seiving menthod
d Conductivity method

3 If the angle of repose is > 45 degrees, then flow will be
a Poor
b Excellent
c Passable
d Fair

4 Which of the following is the half life of Second order reaction
a t1/2 =0.693/k
b t1/2 = 1/ak
c t1/2 = A0/2k
d t1/2 = A0/2k

5 Climate zone IV is
a Hot/dry climate
b Hot/humid climate
c Subtrobical and Mediterranean climate
d Moderate climate

6 The effect of temperature on rate of reaction is explained by
a Nernst equation
b Arrhenius equation
c Noyes whitney equation
d Fick's law

7 _____is the reaction of compounds and molecular oxygen
a Auto-Oxidation
b Hydrolysis
c Photolysis
d Thermolysis

8 Which of following is an example of shear thinning system:
a Tragacath in water
b 10% sugar in water
c Alcohol in water
d Benzene in water

9 As the temperature of liquid increases, what is the change in viscosity?
a Decreases
b Decreases with pressure
c Doesnot effect
d Increases

10 Kinematic viscosity is the:
a ratio of viscosity of dispersion to that of its liquid continuous medium
b ratio of specific viscosity to concentration
c absolute viscosity divided by density of liquid at specified temperature
d ratio of viscosity of continuous medium to that of its dispersion

11 A deformation that does not completely recover after the release of stress is known as
a plastic deformation
b elastic deformation
c pseudoelastic deformation
d this phenonon is non existent

12 Heckel relationship deals with
a. Force Density Relationship
b. Temperature Density relationship
c. Force Dissolution relationship
d. Temperature - surface tension relationship

13 The phenomenon of suspended solids growing in size during storage is known as ___
a Sedimentation
b Agglomeration
c Flocculation
d Crystal growth

14 Andreasen apparatus is widely used to determine particle size distribution by

a Microscopy method
b Sedimentation method
c Sieving method
d Conductivity method

15 Which is of the following is a correct sentence about emulsions
a All emulsions are heterogeneous systems
b All emulsions are homogeneous systems
c Some emulsions are heterogeneous systems
d Some emulsions are homogeneous systems

16 Emulsions can be stabilized by
a electrostatic repulsion between the droplets
b electrostatic attraction between the droplets
c aggregation of droplets
d precipitation of droplets

17 Which of the following is a correct sentence
a Creaming is an irreversible process
b Creaming is a reversible process
c Breaking is a reversible process
d The cream floccules cannot be easily redispersed.

18 Which of the following statement is correct
a Lyophobic systems show most intense Tyndall effect
b Lyophilic systems show most intense Tyndall effect
c Lyophobic systems do not show Tyndall effect
d Lyophobic systems show little Tyndall effect

19 During the Brownian motion
a the velocity of the particles increases with the decrease in particle size
b the velocity of the particles decreases with the decrease in particle size
c the velocity of the particles increases with the increase in particle size
d the velocity of the particles is not affected by the increase in particle size

20 Which of the following statement is correct
a Linear colloidal materials yield dispersions of relatively low viscosity
b Spherical colloidal materials yield dispersions of relatively low viscosity
c Viscosity of the colloidal depersion does not depend on the shape of the colloidal material
d Spherical colloidal materials yield dispersions of relatively high viscosity

Q.II Long Answer Questions **(Answer any two)** **(20)**

Q.1 (A) Mention the measures that could be taken to prevent or reduce hydrolytic decomposition of drugs. **(5M)**

(B) The initial concentration of a drug X was found to be 0.080 M. The concentration after 12 hours was 0.060 M. Calculate the reaction rate constant if decomposition of drug follows first order kinetics. (**5M)**

Q.2 Explain the terms with respect to powder properties: Void volume, True density, Bulk density, Granule density. **(10M)**

Q.3 Write a short note on Mircroemulsions. **(10M)**

Q.III Short Answer Questions **(<u>Answer any seven</u>)** **(35)**

1. Enlist the derived properties of powders. Explain Liquid displacement method to determine true density. **(5M)**
2. What are the methods used for determining particle surface area? Explain any one. **(5M)**
3. What are the limitations of accelerated stability studies? **(5M)**
4. Explain non-Newtonian type of flow (time independent) with rheograms, mechanism and suitable examples. **(5M)**
5. Describe elastic and plastic deformation of solids. **(5M)**
6. Write a short note on electrophoresis and sedimentation potential **(5M)**
7. What is zeta potential? **(5M)**
8. Describe the rheologic properties of emulsion. **(5M)**
9. Write a short note on coalescence and breaking. **(5M)**

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Oriental Education Society's

ORIENTAL COLLEGE OF PHARMACY

LINGUISTICS MINORITY (HINDI) COLLEGE

SEMESTER EXAMINATION

Academic Year 2022-2023 (Second Half) **First Year B. Pharm. (Sem-II)**

Subject: Environmental Sciences. **Subject Code: BP 206 T.**

Marks: 50 **Time: 1.30pm to 3.30pm** **Date: 21/11/2022**

Q. No.	Questions	Marks	Course Outcomes
Q1.	**Attempt *any two* of the following** **1**. Explain ecological biomass pyramid. **2.** Describe deforestation. **3.** Explain the reasons for decline of groundwater.	**20**	**BP_206_T** **BP_206_T**
Q2.	**Attempt *any six* of the following** **1.** Write the functions of forest. **2.** Describe the forest ecosystem. **3.** Causes of air pollution. **4.** Describe the dessert ecosystem. **5.** Explain mining and its effects. **6.** Write the classification of pollutants. **7.** Explain conservation of water. **8.** Explain food chain.	**30**	**BP_206_T** **BP_206_T**

Vision: Create competent pharmacy graduates to contribute in the development of healthcare profession

Duration : 3 hours **(Total Marks : 75)**

N.B. 1. All questions are compulsory
2. Figures to the right indicate full marks.

QI. Choose the correct alternative for the following. **20 M**

1) _____ is one of the enlargements seen when the spinal cord is viewed externally.

a. Thoracic enlargement b. Cervical enlargement
c. Caudal enlargement d. Sacral enlargement

2) _____ cells secrete intrinsic factor for vit B12 absorption.

a. Chief b. Parietal c. Mucous neck d. G

2) The additional volume of air inhaled by taking a deep breath is ____.

a. Inspiratory capacity b. Inspiratory reserve volume
c. Expiratory reserve volume d. Vital capacity

4) Kidneys produce the two hormones _____ and _____.

a. Thymosin and Calcitriol b. Glucocorticoids and erythropoietin
c. Calcitriol and erythropoietin d. Thymosin & Glucocorticoids

5) _____ is an example of Exocrine gland

a. Sudoriferous b. Thymus c. Pancreas d. Ovaries

6) Fluid secreted by the seminal vesicles normally constitutes about _____of the volume of semen.

a. 40 % b. 50 % c. 60 % d. 100 %

7)_____ is the neuroglia which acts as phagocytes in CNS.

a. Oligodendrocyte b. Astrocyte c. Microglia d. Schwann cells

8) During the _____ phase of digestion, the smell, sight, thought, or initial taste of food activates neural centers.

a. Gastric b. Cephalic c. Intestinal d. Mechanical

9) The basic rhythm of respiration is controlled by _____ area.

a. Pneumotaxic b. Apneustic

c. Medullary rhythmicity d. Cough reflex

10) Voiding Phase means.

a. Transfer of materials from peritubular capillaries to renal tubular lumen

b. A relaxed bladder in which urine slowly fills in bladder

c. A contracted bladder that forces the external sphincter open and discharges urine through the urethra

d. Solutes and water are removed from the tubular fluid and transported into the blood

11) Thyroid-stimulating hormone is secreted by _____ glands

a. Thyroid b. Parathyroid c. Pituitary d. Adrenal

12) _____ produces progesterone, estrogens, relaxin, and inhibin hormone

a. Corpus luteum b. Corpus albicans

c. Corpus haemorrhagicum d. Germinal epithelium

13) Which of these is an accessory reproductive gland in male mammals

a. Thyroid b. Ovary c. Gastric gland d. Prostate gland

14) _____hormone is thought to promote sleepiness

a. Thymosin b. Melatonin c. Inhibin d. Glucocorticoids

15) The _____ parts of the female reproductive system is homologous to the glans penis in males.

a. Labia minora b. Labia majora c. Clitoris d. Mons pubis

16) _____ is the inhalation and exhalation of air and involves the exchange of air between the atmosphere and the alveoli of the lungs.

a. Pulmonary ventilation b. Internal respiration

c. Tissue respiration d. External respiration

17) The four layers of GI tract from deep to superficial are _____

a. mucosa, submucosa, muscularis, and serosa
b. submucosa, muscularis, mucosa and serosa
c. muscularis, mucosa, submucosa, and serosa
d. serosa, mucosa, submucosa and muscularis

18) Which of these areas is the association area in the cerebrum?

a.Broca's speech area
b. Primary visual area
c. Primary auditory area
d. Wernicke's area

19) A dome shaped portion superior to the uterine tubes is called as _____

a. Body b. Fundus c. Cervix d. Vagina

20) Contraction of the dartos muscle causes the scrotum to become tight which _____

a. Reduces heat loss
b. Absorb body heat
c. Produce sperm
d. Helps in sperm maturation

II Answer the following (Any 2 out of 3) 20 M

1. Draw a neat labelled diagram of a neuron. Explain the phases of action potential generation in neuron.
2. Draw a neat labelled diagram of the respiratory system and write a note on respiratory centers.
3. Define and classify hormone and describe location and structure of thyroid gland, synthesis, release and storage of thyroid hormones.

III Answer the following (Any 7 out of 9) 35 M

1. Describe the anatomy and structure of the cerebrum.
2. Write in detail the composition, function and formation of Cerebrospinal fluid.
3. Draw a neat labelled diagram of histology of the small intestine, and mention the anatomical parts of the small intestine.
4. Mention the phases of digestion and describe any two in detail.
5. Define Pulmonary ventilation and explain the mechanism of inhalation.
6. With the help of neat labelled diagram explain the structure of the urinary bladder.
7. Elaborate in detail pancreas as endocrine gland and exocrine gland and describe the regulation of insulin and glucagon secretion.
8. Enlist the organs involved in the female reproductive system and describe histology of the ovary.
9. Explain in detail various ducts of the male reproductive system.

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Time- 3 hrs **Marks 75**

Q. I	MCQ	**Mark**
1	Inflammation of prolonged duration in which, inflammation, tissue injury, and attempts of repair coexist is called as _____	**1**
a	Chronic Inflammation	
b	Acute Inflammation	
c	Transient Inflammation	
d	Compound Inflammation	
2	Reduced Oxygen supply to an organ or part of the body is called as	**1**
a	Hypoxia	
b	Hyperemia	
c	Hyponatrimia	
d	Hypokalemia	
3	Exudate is an extravascular fluid that has _____	**1**
a	Low protein concentration, cellular debris and has a low specific gravity	
b	Low protein concentration, cellular debris and has a high specific gravity	
c	High protein concentration, cellular debris and has a low specific gravity	
d	High protein concentration, cellular debris and has a high specific gravity	
4	_____ is a fluid released during inflammation and has higher amount of proteins.	**1**
a	Lymph	
b	Transudate	
c	Exudate	
d	Intracellular Fluid	
5	Increased sensitivity to pain is called as	**1**
a	Hyperalgesia	
b	Hypoalgesia	
c	Analgesia	
d	Algesia	
6	Hypertension caused by chronic kidney disease is called as _____	**1**
a	Primary Hypertension	
b	Secondary Hypertension	
c	Nonlethal Hypertension	
d	Essential Hypertension	
7	_____ infarct is referred as 'non–ST elevation infarct (NSTEMI)'	**1**
a	Anterior	
b	Transmural	
c	Septal	
d	Subendocardial	

8 Inability of the kidneys to perform excretory function leading to retention of nitrogenous waste products from the blood is called as _____ **1**

a Renal Failure
b Renal calculi
c Urinary Tract Infection
d Kidney stone

9 _____ is irreversible necrosis of heart muscle secondary to prolonged ischemia. **1**

a Acute Myocardial Infarction
b Hypertension
c Hypotension
d Atherosclerosis

10 In which type of emphysema, the acini are uniformly enlarged from the level of the respiratory bronchiole to the terminal alveoli? **1**

a Pan acinar
b Para septal
c Irregular
d Distal

11 The immediate cause of _____ is disturbance in normal protective mucosal 'barrier' by acid pepsin, resulting in digestion of the mucosa. **1**

a Ischemic heart disease
b Peptic ulcer disease
c Brain stroke
d Schizophrenia

12 Which of the following is not characteristic of Hemolytic anemia **1**

a Erythroid hyperplasia
b Increased erythropoietin levels
c Increased reticulocytes
d Thrombocytopenia

13 Parkinson disease (PD) is a neurodegenerative disease that is caused by loss of _____ from the substantia nigra. **1**

a Adrenergic neurons
b Dopaminergic neurons
c Serotonergic neurons
d cholinergic neurons

14 _____is caused by beta cell destruction and insulin deficiency. **1**

a Type 1 diabetes mellitus
b Type 2 diabetes mellitus
c Nephrogenic diabetes insipidus
d Cranial diabetes insipidus.

15	Which of th following is negative symptoms of schizophrenia	**1**
a	delusions	
b	hallucinations	
c	withdrawal from social contacts	
d	thought disorder	
16	Which is correct regarding IBD	**1**
a	Toxic megacolon occurs Crohn's and Ulcerative colitis	
b	Risk of developing ulcerative colitis is higher in smokers than non-smokers	
c	Cobblestone appearance on bowel wall is more characteristic of Crohn disease	
d	Patients with Crohn disease are more at a risk of colorectal cancer than UC patients	
17	In the treatment of osteoporosis, which of this essential vitamin is needed to ensure that enough calcium is absorbed by the body?	**1**
a	Vit. A	
b	Vit. C	
c	Vit. B	
d	Vit. D	
18	Chemicals, that can induce cancer are called	**1**
a	Hazardous substances	
b	Carcinogens	
c	Mutagenic agents	
d	Non-Carcinogens	
19	What are the symptoms of the people suffering from latent tuberculosis infection?	**1**
a	Spread TB bacteria to others	
b	Patient feel sick	
c	Have no symptoms	
d	Patients have a negative TB blood test.	
20	Syphilis is caused by which microorganism?	**1**
a	*C. oerfringes*	
b	*C. botulinum*	
c	*Ventral pallidum*	
d	*Treponema pallidum*	
II.	Long Answers **(Answer 2 out of 3)**	**20**
A	Describe any FOUR biochemical mechanisms of Cell Injury.	
B	What is Angina?Explain the types of angina. Discuss Risk factors and pathophysiology of Angina pectorice	
C	Discuss in detail signs and symptoms, etiology and pathogenesis of Peptic Ulcer.	

III. Short Answers **(Answer 7 out of 9)** **35**

A Note on Basic principles of wound healing in the skin

B Explain the signs and symptoms, etiopathogenesis and types of asthma

C Write a note on pathogenesis of Gynecomastia

D Discuss signs, symptoms and etiology of megaloblastic anemia

E Define Benign and Malignant Tumour. Discuss the mechanism of carcinogenesis.

F Enlist the carcinogenic factors.

G What is Jaundice? Classify according to Pathogenesis. Discuss Symptoms and pathogenesis of Jaundice.

H Write a note on Urinary tract infections

I Discuss signs, symptoms and etiology of Syphilis

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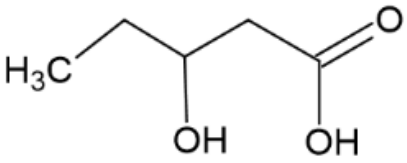
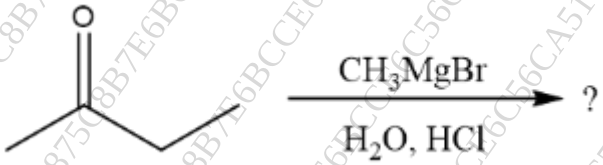
SET I

Subject: Pharmaceutical Organic Chemistry I **Year and Sem: First Year SEM-II**
Duration: 3 Hours **Total marks: 80**
Syllabus: CBCS R-2019

N.B. : 1. All questions are compulsory
2. Figures to right indicate full marks

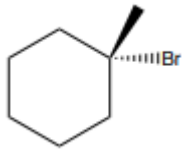
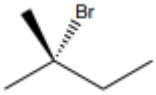
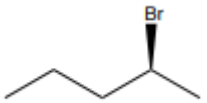
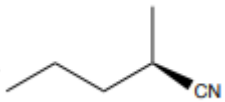
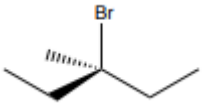
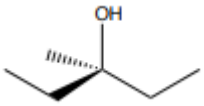
Q. 1	**Choose appropriate option for following multiple choice-based questions.**	**20**
1	Which of the following is not a type of structural isomerism?	
a	Functional Group	
b	Chain	
C	Position	
d	Geometric	
2	What is the IUPAC Name for the following compound? 	
a	4-Hydroxypentanoic acid	
b	3-Hydroxypentanoic acid	
C	2-Hydroxypentanoic acid	
d	3-Hydroxybutanoic acid	
3	Propan-1-ol and Propan-2-ol are an example of	
a	Position Isomerism	
b	Geometric Isomerism	
C	Functional Group Isomerism	
d	Chain Isomerism	
4	Which of the following statements regarding the SN2 mechanisms is wrong?	
a	SN2 reactions are bimolecular	
b	SN2 reactions are usually second order	
C	SN2 mechanism occurs in one step	
d	SN2 reactions usually occur in two steps	
5	Low concentration of nucleophile favours	
a	SN2 reaction	
b	SN1 reaction	
C	Both SN1 and SN2 reaction	
d	SNE reactions	
6	Which of the following undergoes nucleophilic substitution by SN1 mechanism?	

a	Ethyl chloride	
b	Isopropyl chloride	
C	Chlorobenzene	
d	Benzyl chloride	
7	SN2 mechanism proceeds through the intervention of	
a	Free radicals	
b	Carbonium ion	
C	Transition state	
d	Carbanion	
8	An ideal solvent for SN1 reaction -	
a	Polar protic solvent	
b	Polar aprotic solvent	
C	Non polar solvent	
d	Levelling solvent	
9	Why is the halogenation of alkanes considered a chain reaction	
a	It occurs quickly	
b	It occurs with generation of intermediates	
C	Each step generates reactive intermediates that causes next step to occur	
d	Reaction allows long chain of halogenated alkanes to be formed	
10	Chlorine free radicals react with methane by	
a	donating free radical electron to methane to form chloromethane	
b	abstracting a hydrogen atom from methane and producing hcl and methyl radical	
C	forming a carbanion intermediate that rapidly dissociates to produce chloromethanes	
d	forming a carbonium intermediate that rapidly dissociates to form chloromethane	
11	Why isotope effect is observed in E2 reaction?	
a	because it is bi molecular reaction	
b	because it is second order reaction	
C	because breaking of B carbon-hydrogen occur in rate determining step	
d	none of these	
12	2-methyl propene reacts with HBr to give	
a	tert butyl bromide	
b	isobutane	
C	n butyl bromide	
d	no reaction	
13	Why tertiary carbonium ion is more stable than primary and secondary carbonium ion	
a	due to presence of +I effect	
b	due to presence of-I effect	
C	due to steric hindrance	
d	Both a) and c)	

14	Which of the following alkenes will give a mixture of acetone and formaldehyde on ozonolysis?	
a	2 butene	
b	2-methyl 2-butene	
C	1 butene	
d	2 methyl propene	
15	If the double bonds are separated by one single bond the diene is called	
a	isolated diene	
b	conjugated diene	
C	cumulated diene	
d	none of these	
16	1,3 butadiene reacts with bromine to mainly give	
a	3,4 dibromo 1 butene	
b	4 bromo 1 butene	
C	1,4 dibromo 2 butene	
d	1 bromo 2 butene	
17	Which of the following statements is in accordance with Saytzeff's rule?	
a	2-Butene is less stable than 1-Butene	
b	2,3-Dimethyl-2-butene is more stable than 1-Butene	
C	2-Butene is more stable than 2,3-Dimethyl-2-butene	
d	2-Methyl-1-butene is more stable than 2,3-Dimethyl-2-butene	
18	Select the appropriate product for the following reaction. 	
a	Propionic acid	
b	3-methylbutan-2-ol	
C	2-methylbutan-2-ol	
d	butan-2-one	
19	Which of the following reagents is not an example of addition-elimination reaction with aldehyde and ketones?	
a	NH2OH	
b	KCN	
C	NH2NH2	
d	NH2NHC6H5	
20	What is the name of final addition product when alcohols are added to ketones?	
a	Hemiacetal	
b	Acetal	
C	Hemiketals	
d	Ketals	

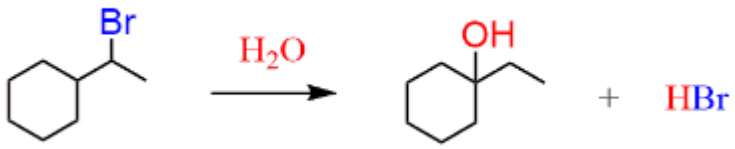
Q. 2 A **Answer any one question.** **12**

a Complete the given table: 12

SUBSTRATE	REAGENT	MAJOR PRODUCT	$S_N1/S_N2/E1/E2$
	$\xrightarrow[H_2O,\ heat]{NaOH}$		
	$\xrightarrow{H_2O}$		
	$\xrightarrow{CH_3OH\ /\ H_2O}$		
	$\xrightarrow[25^oC]{CH_3CH_2OH}$		
			
			

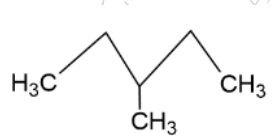
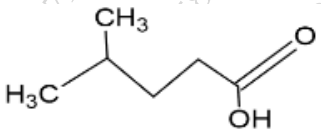
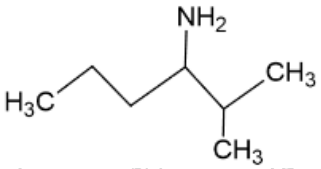
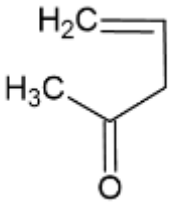
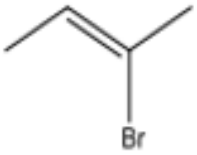
b I) Arrange the following in increasing order of reactivity towards SN1 reaction: CH3CH2CH2Cl, CH3Cl, CH3CH2C(CH3)2Cl and (CH3)3CCH2Cl. Justify the order. Predict the product of the reaction between the most reactive compound and ethanol and propose a mechanism for the formation of the same. 6

II) Explain in detail the given reaction with mechanism. 6



Q. 2 B **Answer any four questions** **48**

a I) Write the IUPAC names for the following 6

	 1  2  3  4  5  6	
	II) Give structures from the following IUPAC names 1) 2-Methylpentanal 2) Ethyl-2-methyl-butenoate 3) 2,3-Dichloro-1,5-dipentanamide 4) 3-Bromo-1-propene	4
	III) Draw the tautomeric forms of cyclohexanone and identify the tautomeric system.	2
b	I) Compound (A) C3H8O reacts with potassium dichromate in dilute sulphuric acid gives compound (B) which on reaction with 2,4-dinitrophenylhydrazine produce orange colour precipitate and also gives positive iodoform test but does not react with Tollen's reagent. The compound B forms a precipitate with phenylhydrazine and undergo self-condensation when heated with dil NaOH. Identify the compound A and B and justify the presence of compound A and B by writing reactions.	6
	II) Depict the detailed mechanism for any two: 1) Aldol condensation 2) Crossed Cannizzaro reaction 3) Perkin Condensation	6
c	I) Discuss any two methods of synthesis of carboxylic acids. Arrange the following in increasing order of acidity and justify: CH3CH2CH(Cl)COOH, ClCH2CH2CH2COOH, CH3CH2CH2COOH, CH3CHClCH2COOH	6
	II) Describe the factors affecting basicity with example. Give structure and uses of Ethanolamine, Amphetamine	6
d	I) How will you distinguish primary, secondary and tertiary alcohols by Lucas test? State chemical reactions. Write the mechanism of acidic dehydration of alcohols.	6

	II) Explain SP2 hybridization in Ethene. Give shape and geometry.	6
e	I) Discuss in detail the general reaction mechanism of nucleophilic addition reaction of aldehydes. Depict the mechanism of reaction of acetaldehyde with KCN. Write the reaction of the test used for differentiating aldehyde and ketone	6
	I) Elaborate on structural Isomerism in organic compounds with examples each	3
	II) Write the mechanism for the following reactions (Any one) 1) Hoffmann's degradation of amides 2) Fischer esterification	3