


**NAVRACHANA
UNIVERSITY**
a UGC recognized University

School: School of Science
 Program/s: B.Sc. Chemistry
 Year: 2nd Semester: 3rd
 Examination: End Semester Examination
 Examination year: December 2022

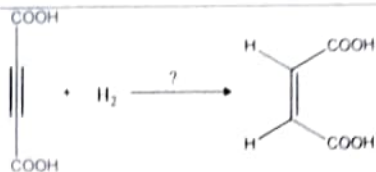
Course Code: CH255 Course Name: Organic Chemistry-I
 Date: 06/12/2022
 Time: 11:30 am to 13:30 pm

Total Marks: 40
 Total Pages: 3

Instructions:

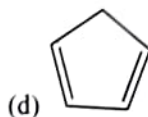
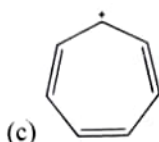
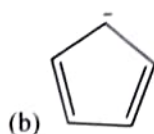
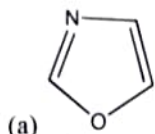
- Write each answer on a new page.
- Use of a calculator is permitted
- Please read the instructions carefully before attempting the Exam
- All questions are compulsory

Q. No.	Details	Marks	Cos*	BTL [#]
Q.1	<p>Choose the most appropriate answer from the options provided</p> <p>1. Predict the major product of following transformation:</p> $\text{H}_3\text{C}-\text{H}_2\text{C}-\text{H}_2\text{C}-\underset{\text{Br}}{\text{HC}}-\text{CH}_2-\text{CH}_3 \xrightarrow[\text{Alcohol, Heat}]{\text{KOH}} ?$ <p>(a) $\text{CH}_3-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}_2\text{CH}_3$ (b) $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}_3$</p> <p>(c) $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}=\text{CH}_2$ (d) $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2-\underset{\text{CH}_3}{\text{C}}=\text{CH}_2$</p> <p>2. The IUPAC name of the following compound is _____</p> $\begin{array}{c} \text{H}_2\text{C}-\text{CH}_3 \\ \\ \text{H}_3\text{C}-\text{C}-\text{C}=\text{C}-\text{CH}_3 \\ \quad \quad \\ \text{CH}_2 \quad \text{H} \quad \text{H} \\ \\ \text{H}_3\text{C} \end{array}$ <p>(a) 4-ethyl-4-methylhex-2-ene (b) 4-methyl-4-ethylhex-2-ene</p> <p>(c) 4,4-diethylpent -2-ene (d) None of the above</p> <p>3. Predict the suitable reagent/catalyst for following transformation</p>	6		
			CO1	BT1
			CO2	BT2
			CO3	BT3
			CO4	BT4



- (a) Na/Li in Liq. NH_3 (b) Pd/ CaCO_3 / H_2
 (c) LiAlH_4 (d) None of the above

4. Which of the following is not an aromatic compound?



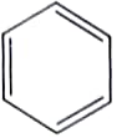
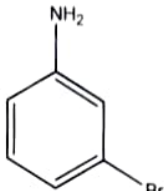
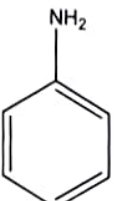
5. Which of the following is incorrect for electrophilic substitution of benzene?

- (a) $-\text{CH}_3$ is activating and o, p-directing
 (b) $-\text{OH}$ is activating and o, p-directing
 (c) $-\text{NO}_2$ is deactivating and m-directing
 (d) $-\text{Cl}$ is activating and o, p-directing

6. Which one of the following statements about the alkenes is false?

- (a) Alkenes are weakly polar, but they are more polar than alkanes.
 (b) Their density is lower than water
 (c) As the branching increases boiling point of alkenes also increases
 (d) They are insoluble in water and soluble in non-polar organic solvents

<p>Q.2</p>	<p>Write chemical reactions to affect the following transformations (Any Three) (i) Benzene to nitrobenzene (ii) Benzene to (1-methylpropyl) benzene (iii) 2-Butanol to 1-butene and 2-butene (iv) 1,3-Butadiene to cyclohexene</p>	<p>6</p>	<p>CO1 CO2 CO3 CO4</p>	<p>BT1 BT2 BT3 BT4</p>
<p>Q.3</p>	<p>Illustrate the following reactions on the basis of chemical equation (i) Kolbe's electrolytic method for alkane synthesis</p>	<p>9</p>	<p>CO1</p>	<p>BT1</p>

	(ii) Friedel-Crafts alkylation (iii) Sulphonation of naphthalene		CO2 CO4	BT2 BT3 BT4
Q.4	<p>Complete the following reactions</p> <p>(i)  $\xrightarrow[3. H^+, H_2O]{1. HNO_3, H_2SO_4, 2. CH_3COCl, AlCl_3}$?</p> <p>(ii) ? $\xrightarrow{Br_2, FeBr_3}$? $\xrightarrow{Sn, HCl}$ </p> <p>(iii)  $\xrightarrow{3Br-Br, H_2O}$?</p> <p>(iv) $H-C \equiv C-H + Na \xrightarrow[2. CH_3-CH_2-Br]{1. Liq. NH_3}$?</p> <p>(v) $CH_3-CH_2-CH=CH_2 \xrightarrow[2. H_2O, Zn]{1. O_3}$?</p>	10	CO1 CO3 CO4	BT1 BT2 BT3 BT4
Q.5	<p>Answer the following in brief (Any Three)</p> <ol style="list-style-type: none"> Methyl group is o, p-directing, justify. What are the limitations of Friedel Craft alkylation? Explain alkylation of toluene How will you synthesize 1-bromo propane and 2-bromo propane from 1-propene? Chair conformer of cyclohexane is most stable conformer, justify. 	9		BT1 BT2 BT3 BT4 BT5

*****End of Question Paper*****