RIVERS STATE UNIVERSITY

DEPARTMENT OF CHEMISTRY

CHM 108: PRACTICAL CHEMISTRY III SECOND SEMESTER EXAMINATION, ONE CREDIT UNIT 2020/2021 SESSION

ENGINEERING & MEDICAL SCIENCE FACULTIES

INSTRUCTION: ATTEMPT ALL QUESTIONS. USE THE SPACE PROVIDED ON THE QUESTION PAPER FOR YOUR ANSWERS. TIME: 1 HOUR

Name:..... Matric. No:.....

Department:..... Faculty:..... Seat No:.....

SECTION A

The table below shows the reactions of alkanols with five different reagents. Using the space provided in the table, state whether there is a **REACTION** or **NO REACTION** in 1-15.

Reagent	Alkanol		
	Primary alkanol	Secondary alkanol	Tertiary alkanol
Sodium metal	1	2	3
Ethanoic acid/H^+	4	5	6
Potassium permanganate	7	8	9
Ethanol	10	11	12
Ethanoyl chloride	13	14	15

16. Give reason for the answer you provided in 1.

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17. Give reason for your answer in 9.

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18. Give reason for your answer in 10.

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19. Give reason for your answer in 12.

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The table below shows the reactions of bromine with aromatic hydrocarbons. Using the space provided in the table, state whether there is a **REACTION** or **NO REACTION** in 20-23. And give reason for each.

Reagent	Aromatic hydrocarbon			
	Phenol	Nitrobenzene	Benzene	Phenylamine
Bromine solution	20	21	22	23

24. Give reason for the answer you provided in 20.

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25. Give reason for your answer in 22.

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SECTION B

Use the information contained in the table below to answer questions 26-28

Name of Compound	Property			
	Molecular formula	Boiling point (°C)	Molar mass (g/mol)	Density (g/cm^3)
Dichloromethane	CH_2Cl_2	39.6	84.93	1.33
Water	H_2O	100	18	1.00
Diethyl ether	$(CH_3CH_2)_2O$	34	74	0.71

26. When water is shaken or mixed with dichloromethane, the liquid separates into two phases. Which compound is present at the top and which is present at the bottom?
    Top:..... Bottom:.....

27. When water is shaken with diethyl ether, a similar two-phase system result. Which compound is present at the top, and which is present at the bottom?
    Top:..... Bottom:.....

28. Give explanation for the two-phase system observed in the two experiments.
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SECTION C

CIRCLE THE CORRECT ANSWERS FOR QUESTIONS 29-32

29. Which of the following hydrocarbons would have a characteristic odour?

a. alkyne	b. arene	c. alkene	d. alkane

30. Cuprous chloride will react with .....

a. 1-hexyne	b. 2-hexyne	c. 2-methyl-2-hexyne	d. 3-hexyne

31. $KMnO_4$ is a/an ..... agent.

a. reducing	b. indicating	c. oxidizing	d. explosive

32. ..... would decolourize bromine solution.

a. ethane	b. ethanol	c. ether	d. ethene

SECTION D

Mention 3 (three) laboratory safety rules as contained in CHM 108 manual.

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34. .....
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35. .....
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