AN EXAMINEE MUST HAVE TO ANSWER THE SET OF QUESTION WHICH HAS BEEN ALLOTTED AGAINST HIS/HER ROLL NUMBER. NO EVALUATION WILL BE DONE IF IT IS NOT OBEYED.

SET 1
for Roll Nos. 3551-51-0012, 3551-51-0013, 3551-51-0016, 3551-51-0078, 3551-61-0003

2020
B.A./B.Sc. Part III Honours Examination
University of Calcutta
CHEMISTRY
Paper VIII
Group A
F.M. 50, Time: 2hrs.

FAKIR CHAND COLLEGE CENTRE (551)

[Use A4 pages and black ink only for writing answers. Write Roll number and Registration number at the top and page number at the bottom of each page. Images of index of your LNB, answer scripts and admit card must be in a single pdf file.]

1. A known solid organic compound, 4-Aminobenzoic Acid, is supplied to you. Write down the detail analysis (qualitative) of the compound as you have performed [Lassaigne's Test (N,S,Cl), Solubility and Classification (H_2O, 5% HCl, 5% NaOH, 5% $NaHCO_3$), Detection of Functional Groups (both positive and negative tests are to be reported)] $(2x3)+(^1/_2x4)+2+(2^1/_2x6) = 25$
2. Lab-quiz 2x5=10
3. Internal Assessment (including LNB) 15
   (Attach image of the signed index page(s) of your LNB (Paper VIIIA) writing your University Roll number and Registration number on it)

==========

LAB-QUIZ

i) Nitrobenzene can be reduced to aniline by heating with Sn and Conc. HCl. Can Zn be used instead of Sn during this reduction? If not, why?
ii) During detection of nitrogen by Lassaigne's Test; what function does Ferrous Sulphate solution perform? Answer with relevant equation(s).
iii) Can Na_2CO_3 be used to detect carboxylic acid functionality?
iv) During azo dye test of aromatic primary amine what happens if the solution of 2-Naphthol is not properly made alkaline?
v) Why in presence of aromatic primary amine; aromatic nitro group cannot be detected by azo dye test?

SET 2
for Roll Nos. 3551-51-0014, 3551-61-0004, 3551-61-0007
3551-61-0012, 3551-61-0017

2020
B.A./B.Sc. Part III Honours Examination
University of Calcutta
CHEMISTRY
Paper VIII
Group A
F.M. 50, Time: 2hrs.

FAKIR CHAND COLLEGE CENTRE (551)

[Use A4 pages and black ink only for writing answers. Write Roll number and Registration number at the top and page number at the bottom of each page. Images of index of your LNB, answer scripts and admit card must be in a single pdf file.]

1. A known solid organic compound, 4-Nitrophenol, is supplied to you. Write down the detail analysis (qualitative) of the compound as you have performed [Lassaigne's Test (N,S,Cl), Solubility and Classification (H_2O, 5% HCl, 5% NaOH, 5% $NaHCO_3$), Detection of Functional Groups (both positive and negative tests are to be reported)] $(2x3)+(^1/_2x4)+2+(2^1/_2x6) = 25$
2. Lab-quiz 2x5=10
3. Internal Assessment (including LNB) 15
   (Attach image of the signed index page(s) of your LNB (Paper VIIIA) writing your University Roll number and Registration number on it)

==========

LAB-QUIZ

i) During detection of nitrogen as special element by Lassaigne's Test; what is the role of using $FeCl_3$ in the final stage?
ii) During detection of carbonyl functionality by DNP Test; what should be the pH range of DNP solution? Why?
iii) Aromatic amide can be detected by the reaction with NaOH and not with NH_4OH. Why?
iv) At the time of detection of chlorine as special element by Lassaigne's Test; what is the function of ammonium hydroxide solution? Give reaction(s).
v) p-Toluidine responds positively in $FeCl_3$ test of phenolic –OH. Explain briefly.

SET 3
for Roll Nos. 3551-51-0015, 3551-61-0006, 3551-61-0008
3551-61-0010, 3551-61-0014

2020
B.A./B.Sc. Part III Honours Examination
University of Calcutta
CHEMISTRY
Paper VIII
Group A
F.M. 50, Time: 2hrs.

FAKIR CHAND COLLEGE CENTRE (551)

[Use A4 pages and black ink only for writing answers. Write Roll number and Registration number at the top and page number at the bottom of each page. Images of index of your LNB, answer scripts and admit card must be in a single pdf file.]

1. A known solid organic compound, Sulphanilamide, is supplied to you. Write down the detail analysis (qualitative) of the compound as you have performed [Lassaigne's Test (N,S,Cl), Solubility and Classification (H_2O, 5% HCl, 5% NaOH, 5% $NaHCO_3$), Detection of Functional Groups (both positive and negative tests are to be reported)] $(2x3)+(^1/_2x4)+2+(2^1/_2x6) = 25$
2. Lab-quiz 2x5=10
3. Internal Assessment (including LNB) 15
   (Attach image of the signed index page(s) of your LNB (Paper VIIIA) writing your University Roll number and Registration number on it)

==========

LAB-QUIZ

i) What will be the observation when p-Toluidine is treated with Brady's reagent? Explain.
ii) What happens when the coloured complex obtained from the reaction between salicylic acid and neutral $FeCl_3$ solution is treated separately with acetic acid and hydrochloric acid respectively? Give the reactions involved.
iii) Why is aniline acetylated before nitration? Explain. Write down the chemical reactions involved in acetylation of aniline.
iv) Identify [**A**], [**B**] and [**C**] along with the missing reagents and conditions.

(I) $PhN_2^+Cl^- + PhNH_2 \xrightarrow{\quad ? \quad} [\mathbf{A}] + HCl$

(II) Ph-CO-CO-Ph $\xrightleftharpoons{\text{50\% KOH, reflux}}$ [**B**] $\xrightarrow{H_3O^+}$ [**C**]

v) Why is back dye test not always a confirmatory one for detection of phenolic –OH group? Explain.

SET 4
for Roll Nos. 3551-61-0005, 3551-61-0009, 3551-61-0011
3551-61-0013, 3551-61-0016

2020
B.A./B.Sc. Part III Honours Examination
University of Calcutta
CHEMISTRY
Paper VIII
Group A
F.M. 50, Time: 2hrs.

FAKIR CHAND COLLEGE CENTRE (551)

[Use A4 pages and black ink only for writing answers. Write Roll number and Registration number at the top and page number at the bottom of each page. Images of index of your LNB, answer scripts and admit card must be in a single pdf file.]

1. A known solid organic compound, 2-Hydroxybenzaldehyde, is supplied to you. Write down the detail analysis (qualitative) of the compound as you have performed [Lassaigne's Test (N,S,Cl), Solubility and Classification (H_2O, 5% HCl, 5% NaOH, 5% $NaHCO_3$), Detection of Functional Groups (both positive and negative tests are to be reported)] $(2x3)+(^1/_2x4)+2+(2^1/_2x6) = 25$
2. Lab-quiz 2x5=10
3. Internal Assessment (including LNB) 15
   (Attach image of the signed index page(s) of your LNB (Paper VIIIA) writing your University Roll number and Registration number on it)

==========

LAB-QUIZ

i) Why during esterification of carboxylic acids dry vessels are necessary? Explain.
ii) How can you differentiate between phthalamide and phthalimide? Explain your answer.
iii) Why is a black coloured solution sometimes obtained on addition of $FeSO_4$ solution to sodium extract solution of the organic compound during detection of special elements by Lassaigne's test? Explain with reactions.
iv) Why is β-naphthol used in diazo coupling reaction for detection of primary aromatic amine and not α-naphthol?
v) Which of the following aromatic compounds does not produce purple colour with neutral $FeCl_3$ solution? Explain.
   (**i**) *p*-$CH_3C_6H_4OH$, (**ii**) *p*-$CH_3C_6H_4CH_2OH$