B.A. / B.Sc. PART I EXAMINATION, 2020
FAKIR CHAND COLLEGE CENTRE (551)

INSTRUCTIONS FOR CANDIDATES

READ ALL THE INSTRUCTIONS CAREFULLY BEFORE WRITING ANSWERS

1. Total **TIME OF EXAMINATION: 2 HOURS**
2. **Candidates Have To Prepare A Single pdf File By Scanning Clearly And Serially (According To Page Numbers).**
3. **ATTACH THE UNIVERSITY REGISTRATION CERTIFICATE** As The Last Page Of The pdf File
4. Use Only **WHITE PLAIN A4 PAPERS** For Writing Answers
5. Use **ONLY BLACK INK** For Writing Your Answers
6. Give **A TOP PAGE** With Clear Mention Of University **REGISTRATION NO.**
7. **GIVE PAGE NO.** At The Top Right/Middle Of Each Page
8. Give **AT LEAST 1CM MARGINS** In All The Four Sides Of Each Page

2020
B.A. /B.Sc. Part I Examination
University of Calcutta
CHEMISTRY – HONOURS
Paper : IIA
F.M. 50

FAKIR CHAND COLLEGE CENTRE(551)

Answer ANY FOUR questions.

1. (a) Compare the nuclear fission and fusion processes showing relevant nuclear reactions. $7^1/_2$
   (b) What is meant by artificial radioactivity? Explain with an example. 5

2. (a) Discuss the origin and physical significance of magnetic quantum number. $7^1/_2$
   (b) What is the ground state term symbol of Co^{3+} ion? 5

3. (a) State the factors on which electronegativity depends. Justify with suitable examples. $7^1/_2$
   (b)The first ionization potentials of the coinage metals follow the order: 5
   Cu>Ag<Au – Explain.

4. (a) Using VSEPR theory, predict the shape of $7^1/_2$
   i) ClF_3 ii) SbF_4^- iii) I_3^-
   (b) Which member of the pair, NaF or $NaBF_4$, is likely to be more soluble in water? 5

5. (a) Explain Schottky and Frenkel defects with examples. $7^1/_2$
   (b) KI is soluble in alcohol while KCl is insoluble. Explain. 5

6. (a) Calculate the pK_1 of H_3AsO_3 and H_3PO_3 using Pauling's empirical rule. $7^1/_2$
   (b) $SnCl_2$ can act both as a Lewis acid and Lewis base- Justify. 5