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ABR-1679 Seat No. _____

M. Sc. (Sem. I) Examination

November / December - 2016

CHN-404 (A) - Group Theory, Spectrocopy & Diffraction Methods

Time : 3 Hours] [Total Marks : 70

1 Answer any **five** :

(1) Discuss the Hermition and Orthogonal Matrix.

(2) Find out $\sqrt{3N}$ for following :

$POCl_3$, BF_3, H_2O, H_2O_2 (Trance)

(3) Explain the Great Orthogonality theory.

(4) Discuss the factors affecting intensities of spectral lines.

(5) Prove that C_3V point group is non abelian group.

(6) Give the various types of plan.

(7) Find out $\sqrt{\text{Vibration}}$ FOR NH_3.

2 Answer any five :

(1) Explain the use of CIS in Mossbaauer spectroscopy.

(2) Describe the XRD by single crystal.

(3) Discuss the Mossbaauer spectrum of Fe complexes.

(4) Explain the relation of Direct and reciprocal lattices.

(5) Write a note on Ramchandran diagram.

(6) Explain the De-bye Schetter method.

(7) Explain Bragg's equation.

3 Answer any five in brief :

(1) What is recoil energy ?

(2) What is subgroup and class ?

(3) Use of Mossbauer spectra.

(4) Give the poin group of $PtCl_4$, C_3H_4 and H_2O_2.

(5) What is Matrix ?

(6) What is Morse function ?

(7) Explain A_2g, B_2u and $A_{2g}{}'$.
