NAY-003-001404 Seat No. _____

B. Sc. (Sem. IV) (CBCS) Examination

March / April - 2017

Chemistry : C-401

(New Course)

Faculty Code : 003
Subject Code : 001404

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) All questions are compulsory.
(2) At the right side, figures show the marks.
(3) Write university seat no. on right side corner of question paper and do not write any rough work - Tick mark in question paper.

1 Answer the following questions : **20**

(1) Write full form of LCAO.

(2) Who had given the principle of M.O. theory ?

(3) Which metals give ionic organometallic compounds ?

(4) Which metal is present in Grignard reagent ?

(5) At which place electrophilic substitution takes place in pyridine ?

(6) What is the hybridization of C atoms in furan ?

(7) Write unit of first order reaction constant.

(8) Write particle size of colloidal solution.

(9) In which method of preparation of colloidal solution, stabilizers are added ?

(10) Write raw materials required for ceramics.

(11) In decoration of ceramics, which oxide gives yellow colour ?

(12) Give full form of RUL.

(13) Give structure of Melamine.

(14) Give structure and name of monomer of Teflon.

(15) What is Gold number of Gelatin ?

(16) How many phases are there in colloidal solution ?

(17) How many σ and π bonds are present between Pt and ethylene in $\left[PtCl_3\left(C_2H_4\right)\right]$ molecule ?

(18) How many nuclei are there in H_2 molecule ?

(19) Which reactant is used to prepare 2-amino pyridine from pyridine ?

(20) Which type of magnetic property Ferrocene shows ?

2 (a) Answer any three of the following : **6**

(1) Explain wave function for H_2 molecule.

(2) Give preparation of Organo Lithium compound.

(3) Give sulphonation of Thiophene.

(4) Write Keto-enol form of ethylaceto acetate.

(5) Define bonding M.O. and antibonding M.O.

(6) Write any one reaction of Frankland and Duppa given to prove keto form of Ethylaceto acetate.

(b) Answer any three of the following : **9**

(1) Explain sp hybridization.

(2) Write short note on Zeise salt.

(3) Give Hantzsch's synthesis of pyridine.

(4) Give synthesis of adipic acid from Ethylaceto-acetate.

(5) Write structure of Trimethyl Aluminium (Dimer) with electronic configuration.

(6) Synthesis of 2-Butanone from Ethylaceto acetate.

(c) Answer any two of the following : **10**

(1) Explain potential energy and Schrodinger equation for H_2.

(2) Discuss the structure of Ferrocene.

(3) Explain structure and aromaticity of Furan, Thiophene and Pyrrole, also explain relative aromaticity.

(4) Give synthesis of 2, 5 dimethyl pyrrole from ethylaceto acetate.

(5) Explain electrophilic substitution reaction in pyridine with resonance structures and any two examples.

3 (a) Answer any three of the following : **6**

(1) Define molecularity.

(2) Explain characteristics of zero order reaction with one example.

(3) What is Tyndall effect ?

(4) Write classification of refractories.

(5) Define thermosetting and thermoplastics polymers.

(6) Define lyophilic sols and lyophobic sols.

(b) Answer any three of the following : **9**

(1) Explain pseudo reaction.

(2) Explain Half life time period method for the determination of the order of reaction.

(3) Write applications of colloids.

(4) Write classification of ceramics.

(5) Give synthesis of polychloroprene.

(6) Write note on Ziegler Natta polymerization.

(c) Answer any two of the following : **10**

(1) Discuss the first order reaction with characteristics.

(2) Explain electrical properties of colloidal solution.

(3) Write a note on manufacturing process of ceramics.

(4) Explain Cationic and Anionic addition polymerisation.

(5) Write notes on :

(i) Effect of temperature on rate of reaction (Arrhenius equation)

(ii) Energy of activation.
