DC-003-001304 Seat No. _____

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

March – 2022

Chemistry : Paper - 301

(Old Course)

Faculty Code : 003

Subject Code : 001304

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

Instructions : (1) All questions are compulsory.

(2) Right side number indicates marks of questions.

(3) Don't do any rough work in question paper.

1 Give answer of the following questions : **20**

(1) A normalized wave function can be represented as _____

(2) Provide de-Broglie's equation.

(3) What is the formula of Fluorocerite ?

(4) What is the electronic configuration of Gadolinium?

(5) Provide structure of Benzophenone.

(6) What is the IUPAC name of Acetone?

(7) Complete the reaction: Aldehyde with HCN.

(8) Provide structure of Phthalic acid.

(9) Give structure of Adipic acid.

(10) Complete the reaction : $CH_3 - CO - NH_2 \xrightarrow{LiAlH_4}$

(11) The reciprocal of viscosity is known as _____

(12) What is the unit of Dipole moment?

(13) Who was the first discovered phase rule?

(14) Provide reduced phase rule.

(15) Define : Triple point.

(16) Which gas is known as blue gas?

(17) Provide full form of GCV.

(18) What gas are main constituent of Coal gas ?

(19) Give one example of Antipyretic drug.

(20) Provide example of Auxochromes.

2 (A) Answer Any **Three** of the following : **6**

(1) Write note on Orthogonal Wave function.

(2) Write short note on Misch metal.

(3) Provide reaction of Ketal from Ketone

(4) Provide Wittig reaction principle.

(5) Explain Decarboxylation of Carboxylic acid.

(6) Provide IUPAC name for Salicylic acid and Succinic acid.

(B) Answer Any **Three** of the following : **9**

(1) Write short not on Eigen function & Eigen Value.

(2) Provide any three postulates of Wave function.

(3) Explain magnetic properties of Lanthanides.

(4) Explain: Cross Aldol condensation.

(5) Give Mechanism of Wolff Kishner Reduction

(6) Write short note on trans-Esterification.

(C) Answer Any **Two** of the following : **10**

(1) Derive the Schrodinger's wave function with respect to space in cartesiun co-ordinate.

(2) Explain Lanthanides contraction in detail.

(3) Explain Reaction with mechanism : Perkin Reaction.

(4) Explain any three synthesis of Aldehyde .

(5) Explain with mechanism: Hell Volhard Zelinsky reaction.

3 (A) Answer Any **Three** of the following : **6**

(1) Define molar volume with equation.

(2) Draw phase diagram of Sulphur system.

(3) Write short note on Azeotrops.

(4) What are fuels?

(5) Discuss characteristics of an ideal gas.

(6) Define: Drugs & Antiseptic drug.

(B) Answer Any **Three** of the following : **9**

(1) Describe Viscosity and their units.

(2) Explain: Component with example.

(3) Discuss about Pattinson's process (de-silverisation of Lead).

(4) Discuss about Natural gas.

(5) Explain classification of dyes in short.

(6) Give synthesis and uses of Malachite green.

(C) Answer Any **Two** of the following : **10**

(1) Explain drop method for determination of surface tension.

(2) Describe applications of dipole moment.

(3) Explain water system with phase diagram.

(4) Explain with diagram, determination of calorific value by Bomb calorimeter.

(5) Provide synthesis and uses of Sulpha-thiazole and methyl orange.
