



MAL-003-001606

Seat No. _____

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

March / April - 2018

C - 601 : Chemistry

(Inorganic Chemistry & Industrial Chemistry)

(New Course)

Faculty Code : 003

Subject Code : 001606

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :**
- (1) All questions are compulsory.
 - (2) Write university seat no. on question paper.
 - (3) Do not write any rough work and tick mark in question paper.
 - (4) Q. 1 carry 20 marks, Q-2 carry 25 marks and Q-3 carry 25 marks.

1 Give answers of following questions : **20**

- (1) What is spin multiplicity ?
- (2) Give full name of CFT.
- (3) Define : Magnetic field.
- (4) Intensity of magnetization $I =$ _____
- (5) Write the chemical name of Litharge.
- (6) Give the name of oxidizing agents used in manufacture of glass.
- (7) Which type of glass utilized in laboratory wares, T.V. tubes and insulators ?

- (8) Write the structural formula of Nickel formate.
- (9) Which oil is utilized in preparation of paints and varnishes.
- (10) Complete it : $\text{NiCl}_2 + \text{HCOONa} \rightarrow$
- (11) Give full name of STPP.
- (12) Give uses of Neem Soap.
- (13) Define : Pollution.
- (14) Give full name of BOD.
- (15) Define : Orbital multiplicity.
- (16) Magnetic susceptibility per gram of sample
 $\chi_g = \underline{\hspace{2cm}}$
- (17) Complete it : $\text{Na}_2\text{CO}_3 + \text{SiO}_2 \rightarrow$
- (18) Groundnut oil is $\underline{\hspace{2cm}}$ type of oil.
- (19) Give the names of three types of pollutions.
- (20) Define : ECO system.

2 (A) Give answers of following questions : (Any Three) 6

- (1) Microstates = $\underline{\hspace{2cm}}$
- (2) What is Orgel diagram ?
- (3) Which electronic transitions have very weak intensity ?
- (4) Define the term : Unit Pole
- (5) Define : Magnetic induction.
- (6) What is molar magnetic susceptibility ?

(B) Give answers of following questions : (Any Three) 9

- (1) Write a short note on S-S coupling.
- (2) Define : Jahn-Teller effect.
- (3) Discuss spin selection rule.

- (4) Write a short note on para magnetism.
- (5) Write note on : Ferro and Anti Ferro magnetic compounds.
- (6) Write a note on I-S coupling.

(C) Give answers of following questions : (Any **Two**) **10**

- (1) Discuss Hund rules for the determination of ground state term symbol.
- (2) Discuss splitting of d-orbitals in square planer complexes.
- (3) Discuss Gouy method for the determination of magnetic susceptibility.
- (4) Explain diamagnetism and derive the equation for diamagnetic momentum.
- (5) Discuss electronic spectrum of $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$

3 (A) Give answers of following questions : **6**

- (1) Which chemicals are utilized to removal of air bubbles from liquid glass ?
- (2) Write the structure of soda lime glass.
- (3) Define : Inediable Oils.
- (4) What is the importance of NaCl in soap manufactures ?
- (5) Give the names of binding agent utilized in soap manufacture process.
- (6) Define : Smog

(B) Give answers of following questions : (Any **Three**) **9**

- (1) Write a note on High Silica glass.
- (2) Write chemical properties of glass.
- (3) Define : Drying oils.

- (4) Define : Non ionic detergent process.
- (5) Explain it : Thermal Pollution.
- (6) How C.F.C. react with O_3 (reactions only)

(C) Give answers of following questions : (Any **Two**) **10**

- (1) Write a note on photochromic glass.
 - (2) Explain determination of acid value of an oil.
 - (3) Explain determination saponification value of an oil.
 - (4) How the thermal pollution affects the ecosystem and how it could be prevented ?
 - (5) What is COD ? How COD is determined ? Explain it.
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