



# DIRECTORATE OF DISTANCE EDUCATION

L.N. Mithila University, Kameshwaranagar, Darbhanga-846008 (BIHAR)

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## M.Sc. Chemistry (Previous) DEC 2022

### सत्रीय कार्य ( ASSIGNMENT )

All Questions are to be answered (सभी प्रश्नों के उत्तर आवश्यक है।)

Each Maximum in 800 words

All Questions are of equal value (सभी प्रश्नों के मान बराबर है।)

Max. Marks/weightage = 30%

### Paper - I (Paper Code : CHE-101)

#### Course Title : Physical Chemistry

1. Define the partial molar quantity. What is the physical significance of partial molar quantity?
2. Derive Gibbs -Margules equation and discuss its application.
3. Describe viscosity method for determining the molecular weight of polymers.

### Paper - II (Paper Code : CHE-102)

#### Course Title : Inorganic Chemistry

1. Explain the following
  - I. Beat rule
  - II.  $\pi$ - $\delta$  bond
  - III. molecular orbital diagnose of NO
2. With the help of USEPR theory find out
  - 1) Hybridization
  - II. shape
  - 2) Bondangle of the following
    - i.  $\text{POCl}_3$
    - ii.  $\text{I}_3$
    - iii.  $\text{SO}_4$
    - iv.  $\text{PCe}_5$
    - v.  $\text{XCO}_3$
3. Discuss the oxidation states of lalulhevide element. How do you separates Lenthemed by the exchange method?

### Paper - III (Paper Code : CHE-103)

#### Course Title : Organic Chemistry

1. What is hyper conjugation ? How does it explain the stability of alkenes.
2. Explain the mechanism of following reaction
  - i. Michael addition reaction
  - ii. Perkin reaction
3. Explain Hofmans rule and saytzeffs rule.

### Paper - V (Paper Code : CHE-105)

#### Course Title : Physical Chemistry

1. Write down postulates of quantum mechanics. Explain the term Eigen function and Eigen value with example.
2. Derive an expression for the energy of a rigid rotor using the Schrodinger wave equation.
3. What is LCAO - MO theory? Discuss the application of LCAO-MO theory of  $\text{H}_2 + \text{ion}$ .

### Paper - VI (Paper Code : CHE-106)

#### Course Title : Co-Ordination Chemistry

1. Answer the following.
  - I. Show that  $\Delta_t = 4/9 \Delta_0$
  - II. write notes on Spectrochemical series.
  - III. Tetrahedral Complexes are of high spin.
2. Discuss acid hydrolysis of  $\text{CO (III)}$  octahedral complexes.
3. What do you mean by Crystal field stabilization energy? Calculate CFSE for  $d^5$ ,  $d^6$ , and  $d^7$  is both the cases

### Paper - VII (Paper Code : CHE-107)

#### Course Title : Chemistry of Bio-Molecules

1. Explain the structure and function of triglycerides.
2. write short notes of following.
  - i. Zwitter ion
  - ii. ISO electric point
3. Differentiate between DNA and RNA. What part do they play in biological chemistry

नोट:- दत्त कार्य जमा करने की अंतिम तिथि 15/12/2022

## **GENERAL INSTRUCTION FOR ASSIGNMENT**

1. Assignment in each course consists of 30% weightage whereas TEE consists of 70% weightage.
2. The assignment carrying equal weightage shall be evaluated for the purpose of examination. Assignment writing is compulsory.
3. If the assignment is not submitted before the prescribed date, the study required of the student will not be considered to have been completed and he/she will be declared as 'not completed' the course.
4. The weightage obtained by the candidate in assignment will be clubbed with the weightage obtained by a student at TEE of that course of the programme, therefore, it is in the interest of the student to submit the assignment work in time.
5. Assignment should be written very carefully and in own handwriting. It should not be copied from the learning materials.
6. Assignments can be submitted in the Answer Books provided to the students by Directorate of Distance Education, L.N. Mithila University, Kameshwarnagar, Darbhanga for this purpose or on A4 size paper.
7. The candidate must write his/her ***Enrolment No., Session, Programme, Course, Course Code, Course title, date of submission*** on the Assignments.
8. Assignment may be sent by Post also and the student must keep a proof of submitting assignment along with photocopy of the submitted assignment for future.
9. No assignment will be accepted after TEE of that course. Hence, assignment must be submitted on or before fixed date.
10. Assignment should be handwritten only. No typed or photocopy will be accepted.
11. Each and every assignment should be submitted separately.
12. Assignment may be written either in Hindi or English.
13. **PCP (Personal Contact Programme)** is organised by counseling P.G. Dept. to help in programme related problems.
14. The candidates are advised to attend PCP and they should come after reading the materials.
15. Project Work/Dissertation, wherever prescribed, must also be submitted by the fixed date, failing which the student will be deemed to have not completed in the concerned course.
16. Enrolled Students must visit the official website ([www.ddelnmua.ac.in](http://www.ddelnmua.ac.in)) regularly for update information.

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