Enrollment No……

Master of Science (Chemistry)
Fourth Semester Main Examination, June-2021
Analytical Chemistry [MSC401T]

Time: 3:00 Hrs **Max Marks 85**

Note: Attempt all questions. Each question has two parts. Part A is 10 marks and part B is 7 marks.

Q.1 (a) Write the selection rule of electronic spectroscopy.
(b) Describe the X-Ray diagram of Monochromatic.

OR

(c) Explain sample of mixtures in details.
(b) Explain the Electronic spectral studies of transition metal Complex.

Q.2 (a) Write application of atomic absorption spectroscopy.
(b) What are single beam & double beam spectra? Explain briefly.

OR

(c) Discuss the basic principle of flame emission spectroscopy.
(d) Write detailed note on F-Test and T-Test.

Q.3 (a) Write the Ion exchange chromatography application, Method & their types.
(b) Write a details on Ion exchange chromatography and also draw it lebeled diagram.

OR

(c) Give brief account on cyclic voltammetry.
(d) Discuss the theory of electro gravimetric analysis.

Q.4 (a) Write a short note on differential scanning colorimeter (DSC).
(b) Write in detail the principle of analytic separation.

OR

(c) Discuss the theory of absorption and partition chromatography.
(d) Explain the Thermo gravimetric analysis along with its principle and instrumentation.

Q.5 Write note on (any two):-
(a) Classification of Chromatographic techniques.
(b) Application of Thermal methods in analysis.
(c) Differential scanning Calorimeter.
(d) Application of thermal method in analysis Chemistry.

Enrollment No……

Master of Science (Chemistry)

Fourth Semester Main Examination, June-2021

Environmental Chemistry [MSC402T]

Time: 3:00 Hrs **Max Marks 85**

Note: Attempt all questions. Each question has two parts. Part A is 10 marks and part B is 7 marks.

Q.1 (a) Describe vertical temperature and temperature version.
(b) Explain Biochemical cycles of carbon.

OR

(a) Explain analytical method of measuring BOD (Biological Oxygen Demand)
(b) Explain various effects of heat budget.

Q.2 (a) Write down the classification of pesticides.
(b) Write a brief note on Japan Tsunami.

OR

(a) What are pesticides? Explain
(b) Explain Minimata diseases

Q.3 (a) Write a short note on the biological cycle of oxygen.
(b) Explain, What is micro and macro nutrients.

OR

(a) Explain the biological cycle of Nitrogen.
(b) Write is noise pollution? Write control strategies of air pollution.

Q.4 (a) Write down the purification and treatment method of water?
(b) What is air pollution? Write control strategies of air pollution.

OR

(a) Write down the photochemical reactions in atmosphere.
(b) How did the smog formed in atmosphere? Explain .

Q.5 (a) Write short note on any two:
(i) DO (Dissolved Oxygen) (ii) Acid Rain (iii) Green House Effect
(b) Explain organ chlorine pesticides. Briefly.

OR

(a) Explain the analytical method of measuring COD (Chemical Oxygen Demand)
(b) What is the role of Environmental chemistry and their examples?

Enrollment No……

Master of Science (Chemistry)

Fourth Semester Main Examination, June- 2021

Solid State Chemistry and Material Science [MSC403T]

Time: 3:00 Hrs **Max Marks 85**

Note: Attempt all questions. Each question has two parts. Part A is 10 marks and part B is 7 marks.

Q.1 (a) Write the short note about Zeolite synthesis.
(b) What is coprecipitalion as a procedure to solid state reactims.

OR

(a) Write short note about Stokbarger methods ?
(b) General principles of solid state of compounds.

Q.2 (a) What is law of mass action? Derive it.
(b) Write is H- Centre defect in solids.

OR

(a) Give on example of a solid that shows both schottg a frenkal defects.
(b) Short notes about Meissner effect of super conductivity with diagram

Q.3 (a) What is the role of nano technology in various field and CVD method.
(b) How can be synthesis of nanoparticles by nano lithography.

OR

(a) What is Nanostructure material and write are example?
(b) Write sol-gel synthesis of nanomaterial's?

Q.4 (a) What are carbon nanolubes and the use of carbon namtubes.
(b) What are optical properties and chemical properties of nanomaterial's?

OR

(a) Write is quantam well and quantam dot.
(b) Write the relation between luminescence and phosphors.

Q.5 (a) Write the properties and advantages of nanomaterial's.
(b) What are the important features of BCS theory.

OR

(a) How do you center a Colour?
(b) What is Non- Stoichiometric an example of non- Stoichiometric Compound?

Enrollment No……

Master of Science (Chemistry)

Fourth Semester Main Examination, June-2021

Bio-organic Chemistry [MSC404T]

Time: 3:00 Hrs **Max Marks 85**

Note: Attempt all questions. Each question has two parts. Part A is 10 marks and part B is 7 marks.

Q.1 (a) Write a note on enzyme substrate complex.
(b) Write biotechnological application of enzymes.
OR
(c) Explain transition state theory.
(d) Explain Chemical and biological catalysis.

Q.2 (a) Explain Nomenclature and classification of enzyme.
(b) What is meant by acid base catalysis .
OR
(c) What Clinical uses of enzymes.
(d) What is apo enzyme and crown ether.

Q.3 (a) Define enzyme and types of enzyme.
(b) Application of enzyme clinical analysis.
OR
(c) Explain steric effect orientation.
(d) What is Co- enzyme and their uses.

Q.4 (a) Write short note on prosthetic group with function.
(b) Explain promity effect and molecular adaption.
OR
(c) Write properties of enzymes.
(d) How do vitamins act as co-factors.

Q.5 (a) Explain micelles synthetic enzyme or synzymes.
(b) Explain cyclodextrin based enzyme models.
OR
(c) Discuss short guest chemistry in enzyme model with application.
(d) What do you mean by recombinant DNA technology.

Enrollment No……

Master of Science (Chemistry)
Fourth Semester Main Examination, June-2021
Organo Metallic Chemistry [MSC405T]

Time: 3:00 Hrs **Max Marks 85**

Note: Attempt all questions. Each question has two parts.
Part A is 10 marks and part B is 7 marks.

Q.1 (a) Define organometallic chemistry? Write an exhaustive note on it.
(b) Explain synthesis of glycerol (Monsanto Acetic Acid Process)?
OR
(c) What do you mean by the term hybridization? Explain in detail.
(d) What are organometallic compound? Explain with its types and uses.

Q.2 (a) Explain butadiene in organic synthesis.
(b) What are organyls of sodium?
OR
(c) Define molecular orbital theory.
(b) Write a detailed note on Grignard's reagent.

Q.3 (a) Explain synthesis of cyclopentadieny metal carbonyls.
(b) Explain Organometallic of zinc with the help of structure.
O
(c) Write chelate effect and theory, structure of chelate effects.
(d) Give systemic classification of σ-bounded transition metal hydrocarbons.

Q.4 (a) Explain in detail electrophilic substitution reaction of ferrocene .
(b) Write the structure of C_4R_4 as a ligand with central metal atom.
OR
(c) What is homogenous catalysis? Explain giving suitable example.
(d) What are the application of transition metal complex.

Q.5 (a) Describe the Zn and Hg organo metallic compounds with example.
(b) What are cyclopentadienyl metal carbonyls? Write is important reactions.
OR
(c) What are metal hydrides? Explain with example.
(d) Explain the synthesis process of organo magnesium compounds.