

# MANONMANIAM SUNDARANAR UNIVERSITY

DIRECTORATE OF DISTANCE AND CONTINUING EDUCATION

INTERNAL ASSIGNMENT FOR MAY 2025 EXAMINATIONS

## B.Sc. Chemistry

தமிழும்அறிவியலும் (J1TL41)

1.அ. அறிவியலில்மனிதவாழ்வுபெறுமிடத்தைக்கட்டுரைக்க.

அல்லது

ஆ. பழந்தமிழ்இலக்கியங்களில்உள்ளஅறிவியல்சிந்தனைகளைக்கட்டுரைக்க.

2. அ. சிற்றிலக்கியங்களில்உள்ளஅறிவியல்சிந்தனைகளைக்கட்டுரைவரைக.

அல்லது

ஆ. இணையத்தமிழ்கல்விக்கழகம்மற்றும்நூலகத்தின்செயல்பாட்டைவிவரிக்க

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**General English – IV (J2EN41)**

1. a) Discuss the challenges faced by Adeline Yen Mah in *Chinese Cinderella*.

**OR**

- b) Analyze the speech on *The Quality of Mercy* in *The Merchant of Venice*.

2. a) How does *Pride* by Dahlia Ravikovitch portray the hidden strength behind emotional vulnerability?

**OR**

- b) Write a Welcome Address speech on the occasion of a literary conference at your college.

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**GENERAL CHEMISTRY IV - JMCH41**

1. a. Define the first and second laws of thermodynamics. Explain their significance with suitable examples. Also, discuss the concepts of internal energy, enthalpy, and entropy, and their role in thermodynamic processes

or

- b. Discuss the general characteristics of d-block (transition) elements with reference to their electronic configuration, oxidation states, catalytic properties, formation of colored compounds, and magnetic behavior. Support your answer with suitable examples from the first transition series

2. a. Compare and contrast the reactivity of carboxylic acids with their derivatives (acid chlorides, esters, and amides) in nucleophilic acyl substitution reactions. Discuss how electronic and steric factors influence their reactivity. Use mechanistic pathways and examples to support your discussion.

or

- b. Discuss the important physical properties of the first transition series (3d) elements. Explain their trends in atomic and ionic radii, ionization enthalpies, magnetic properties, and color. Provide a detailed analysis of how these properties vary across the series and the factors that influence these trends.

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## **B.Sc. Chemistry**

### **Instrumental Methods of Chemical Analysis - JSCH41**

1. Explain the differences between qualitative and quantitative analysis in chemical research. Discuss the techniques commonly used in both types of analysis, including their advantages, limitations, and applications. How do qualitative and quantitative methods complement each other in a comprehensive analytical approach?

or

2. Explain the principle and working of Atomic Absorption Spectroscopy (AAS). Discuss the instrumentation involved, including the role of the flame, atomizer, and detector. Highlight the applications of AAS in qualitative and quantitative analysis, along with its advantages, limitations, and common sources of errors.
3. Discuss the application of UV-Visible and IR spectroscopy in determining the concentration of a compound in solution. Explain how Beer-Lambert law is applied in UV-Vis spectroscopy and the fingerprinting method in IR spectroscopy. Provide examples of their use in pharmaceutical analysis.

or

4. Discuss the principles and applications of thermal methods (TGA, DSC) and electro-analytical techniques (Voltammetry, Potentiometry) in chemical analysis. Highlight their advantages and limitations in material and environmental analysis.

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**FORENSIC SCIENCE - JNCH41**

1. (a) Discuss in detail the role and significance of fingerprint and footprint evidence in forensic investigations. Include methods of collection, analysis, and their impact on solving criminal cases.

(Or)

(b) Critically analyze the basic principles of forensic science. How do these principles support the continuous advancement and reliability of forensic methodologies in modern investigations?

2. (a) Trace the historical development of forensic science from its early beginnings to the present day. Highlight major milestones, influential cases, and technological innovations that have shaped the field.

(Or)

(b) Examine the process and importance of bloodstain pattern analysis in crime scene investigations. Discuss types of patterns, the science behind their interpretation, and real-life applications in solving crimes.

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### **Programming Language C++-JECS41**

1.a) Explain the Keywords, Identifier and Constants.

(or)

b) Explain (i) Call-by-Reference (ii) Return By Reference

2.a) Define Constructor. Explain the types of Constructors

(or)

b) Explain the overloading special operators

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### **ValueBasedEducation-JVBE41**

1. a) Analyze the women rights in India.  
(or)  
b) Explain the concept and types of child abuse.
  
2. a) Examine the causes and effect so falcoholism and drug addiction.  
(or)  
b) Discuss the role of being a good civilian.