

School of Basic Sciences
Bachelor of Science Honours in Chemistry
Semester End Examination - May 2024

Duration : 180 Minutes
Max Marks : 100

Sem VI - C1UB601T - Chemical Energetics and Radiochemistry

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

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| 1) | Summarize the internal conversion process in the Jablonski diagram? | K1 (3) |
| 2) | Identify the Clausius statement of the Second Law? | K2 (4) |
| 3) | Illustrate the relationship between the temperatures of the heat source and sink in a Carnot cycle. | K2 (6) |
| 4) | Determine the electron capture with suitable example? | K3 (6) |
| 5) | Determine the differences between neutron emission and positron emission? | K3 (6) |
| 6) | Explain Geiger-Nuttall rule with a suitable example? | K3 (9) |
| 7) | Explain the radioactive elements with suitable examples? | K3 (9) |
| 8) | Discuss a galvanic cell, and its role in generating electrical energy? | K4 (8) |
| 9) | Compare the different types of neutron activations with suitable example? | K4 (12) |
| 10) | Conclude some recent developments in Thermodynamics and Radiochemistry? | K5 (10) |
| 11) | Predict natural and induced radioactivity in terms of their origins, characteristics, and implications for human health and the environment. | K5 (15) |

OR

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| | Predict the Jablonski diagram depicting various processes occurring in the excited state? | K5 (15) |
| 12) | Justify the types of Salt Hydrolysis Reactions with suitable examples? | K6 (12) |

OR

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| | Justify an example of a numerical problem involving the use of Hess's Law to determine the enthalpy change. | K6 (12) |
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