

J.C. BOSE UNIVERSITY OF SCIENCE AND TECHNOLOGY
SESSIONAL EXAM, July 2022
CLASS - B. Tech. ENC/EE(IoT)
CHEMISTRY (BSC 102)

Time: 90 min

Max Marks: 15

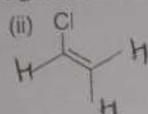
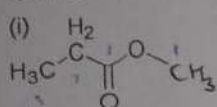
All questions are compulsory

Q.1 Derive the expression for energy and wave function for a particle in 1-D box. (3)

Q.2 Write down the electronic configuration and draw the molecular orbital diagram for O_2 . Also predict its magnetic behavior. (3)

Q.3 Compare the Radial plots for 3p and 3d orbitals, depicting the number of radial nodes. (2)

Q4. Predict the number of signal and their splitting in 1H NMR spectrum of following molecules:



Q5. What is anisotropic effect? (2)

Q6. Explain the application of UV spectroscopy. (2)

Q7. Determine the number of vibrational modes (D.O.F.) in $H-C\equiv C-F$. (1)