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(Govt. Aided, affiliated to the University of Kalyani Included under section 2(f) & 12 (B) of UGC Act.)

Notice

07.12.2024

All the Students of Semester V of Department of Chemistry are asked to submit the assignment given below on or before 17/12/2024.

SEM V (HONS)

Paper CC-12

1.Briefly discuss different types of molecular spectra. 4
2. Discuss the Born-Oppenheimer approximation 3
3. Briefly discuss excess pressure with example. 3

Paper: CC-11

1. The $[CrF_6]^{3-}$ exhibits absorption bands at 14900, 22700 and 34400 cm^{-1}. Draw the orgel diagram and assign the electronic transitions. 3
2. Calculate the CFSE in terms of Do for the complexes $[Ni(H_2O)_6]^{+2}$ and $[NiCl_4]^{-2}$. Then comment on their stabilities. 3
3. Write a brief note on Jahn-Teller Distortion and show the splitting pattern of z-out and z-in distortion with brief explanation. 4

Paper: DSE 1A

1. What is meant by sustainability in green chemistry? Explain the twelve principles of green chemistry. Define 'atom economy' and 'E- Factor' in green chemistry. 1+2+1+1 = 5
2. What is the principle behind microwave-assisted reactions? Write down difference between microwave heating and traditional heating. Give examples of microwave assisted reaction in water solvent and organic solvent (give two examples in each case) 2+1+2 = 5

Paper DSE 1B

1. Write down the ingredients of cement. What is safety glass? Describe briefly the steps involved in the manufacture of glass with flow chart diagram. 1+1+3 = 5
2. What is battery? Write a short note on Li-ion battery. Write the cell reactions of lead storage battery. 1+2+2 = 5

SEM V (PROGRAM)

Analytical, Environmental and Industrial Chemistry
Course code – CHEMGTDSE-1

1. What is the principle of thin-layer chromatography (TLC)?
2. Explain the formation of photochemical smog and its environmental effects.
3. Explain the concept of accuracy and precision in analytical results.
4. Explain the Haber process for ammonia production.
5. Explain the significance of Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) in water analysis.

HoD
Chemistry