BSCT-103

1055

Odd Semester Examination 2018-19

B. TECH. (CSE) (SEMESTER-I)

(New Syllabus)

CHEMISTRY

Time: 03:00 Hours

Max Marks:100

Note: Student need to attempt all questions as per instructions given below. Each question carries equal marks.

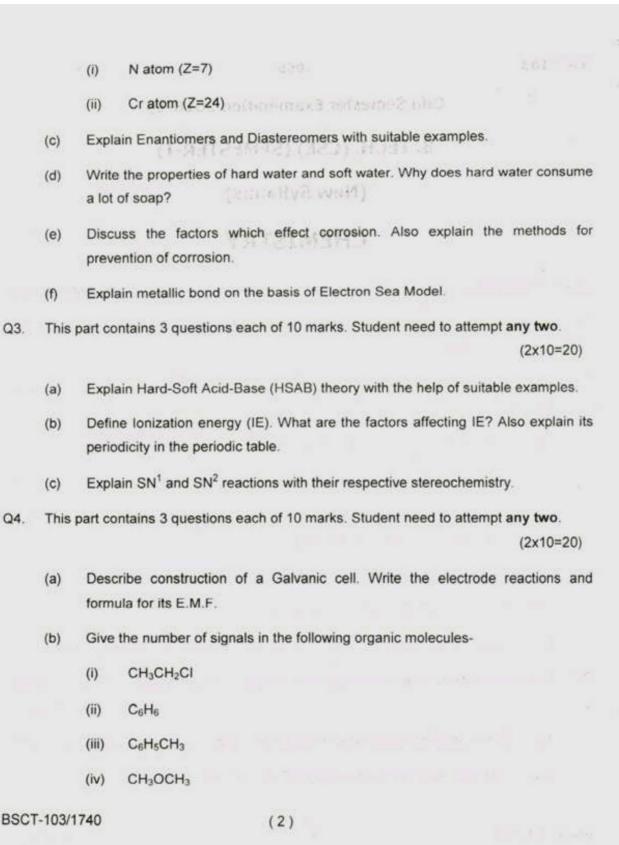
- Q1. This part contains 6 questions each of 5 marks. Student need to attempt any four. (4x5=20)
 - (a) Discuss the mechanism involved in Aldol condensation.
 - (b) Explain Nernst equation in detail.
 - (c) What is bond order? Discuss the molecular orbital diagram of O₂⁺ ion with its magnetic character and bond order.
 - (d) Explain Linear Combination of Atomic Orbitals (LCAO).
 - (e) Write a short note on Electronegativity.
 - (f) What is the principle of NMR spectroscopy? Also discuss its applications.
- Q2. This part contains 6 questions each of 5 marks. Student need to attempt any four.

 (4x5=20)
 - (a) Derive the Schrodinger's wave equation for a particle moving in three dimension.
 - (b) Calculate effective nuclear charge (Zeff) at the periphery of

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- (v) CH₃CH₂OH
- (c) Explain conductors, semiconductors and insulators with the help of Band theory.
- Q5. This part contains 3 questions each of 10 marks. Student need to attempt any two. (2x10=20)
 - (a) Define Entropy of a system. Calculate the standard entropy of formation, ΔS⁰ f of CO₂(g). Given the standard entropies of CO₂(g), C(s), O₂(g), which are 213.6, 5.740 and 205.0 JK⁻¹ respectively.
 - (b) Explain the following:
 - F is more electronegative than CI, although its electron affinity is less than that of CI.
 - (ii) CO is diamagnetic while NO is paramagnetic.
 - (c) What are the main postulates of crystal field theory (CFT). Discuss crystal field splitting in [Co(NH₃)₆]²⁺ complex ion.

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