Q.P. Code :06886

[Time: 3 Hours] **[Marks:80]**

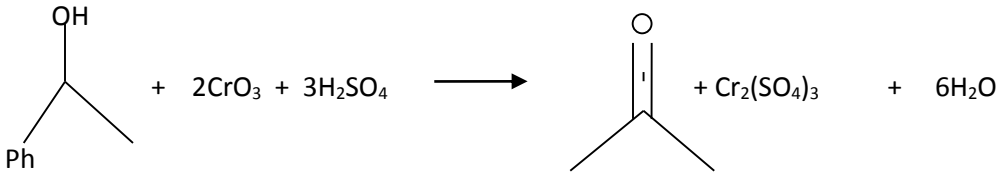
N.B: 1. **All** questions are **compulsory**.

Q.1 Answer any 10 out of 11 questions listed below 20

i) Explain atom economy with example.
ii) What is E factor?
iii) Give four examples of non-hazardous protecting groups?
iv) Explain use of PEG in green chemistry.
v) Give the two examples solvent less reaction.
vi) Justify, "Use of sonication in organic reactions is green chemistry approach".
vii) Give the two examples of green reducing agents.
viii) Give the advantages of enzyme assisted organic reactions.
ix) Give the two examples of ionic liquids.
x) What is green metrices?
xi) What are biomimetics?

Q.2 a) Explain the advantages of water over organic solvents with a suitable example. 04

b) i) Calculate atom economy of the following reaction. 02



ii) Identify and discuss the non-green components in nitration of nitrobenzene. Suggest green alternative for the same. 02

c) What is biocatalyst? Give its application in Pharmaceutical industry. 04

Q.3 a) Discuss with suitable example microwave assisted organicreaction. 04

b) What is supercritical CO_2? Explain its uses in green synthetic reactions. 04

c) Explain Suzuki coupling reaction in aqueous medium. 04

Q.4 a) Explain the role or water as green solvent for the reaction. 04

b) What are solid acid catalysts? Explain with example zeolite catalyzed reactions. 04

c) Explain the concept of combinatorial green chemistry with examples. 04

Q.5 a) What are future trends in green chemistry and explain in detail biomass conversion. 04

b) Enlist the strategies for green chemistry synthesis and explain any two in detail with examples. 04

c) What are ionic liquids? Give the advantages of ionic liquids. 04

Q.6 a) Explain the concept of energy minimization with respect to green chemistry giving suitable example. 04

b) Enlist the green solvents and explain its role in green synthesis. 04

c) Discuss about green synthesis of aspirin. 04

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