Total Pages : 4

**End Semester Examination of Semester–II, 2016**
**Subject : CHEMISTRY (PG)**
**Paper : CEMPG–204**
**Full Marks : 40**
**Time : 2 Hrs**

*The figures in the margin indicate the marks corresponding to the question*

*Candidates are requested to give their answers in their own word as far as practicable.*

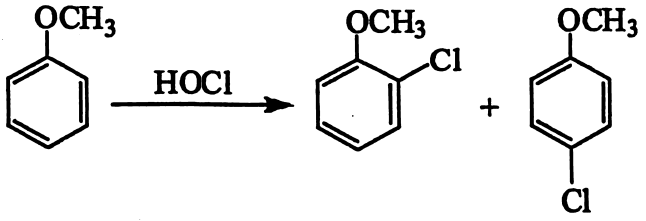
*Illustrate the answers wherever necessar.*

Answer **one question** from each group

## Group A

Answer **any one** question: 10x1=10

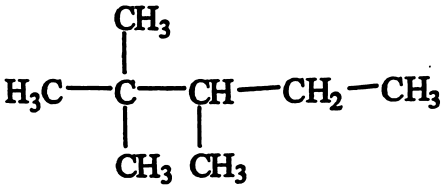
1. a) What is the effect of adding α-CD on the following chlorination reaction: 2



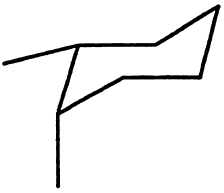

b) Write briefly about different types of Cyclodextrines. 6

c) Give application of Cyclodextrins. 2

2. a) Calculate the heat of formation of following compounds: 2+2



S.E. = 0



S.E. =10.1 K.Cal/mole

b) What is sensing property of a organic molecule? How is $Ni^{2+}$ ion can be determined in a mixture of metal ion? 2+2

c) What is molecular mechanics calculation? 2

## Group B

Answer **any one** question: 10×1=10

3. a) What is 'top-down' and 'bottom up' approach of nano Science? Give examples. 2+2

b) Why the nano materials are different from their bulk counter parts? 3

c) Name the different characterization methods by which sizes and shapes of nanomaterial can be determined. 3

4. Write short note on (any four) : $4 \times 2\frac{1}{2} = 10$

i) Chemical Vapour Deposition.

ii) Capping agent.

iii) TEM and SEM.

iv) Application of Nanomaterials.

v) Chemical Synthesis of Nanomaterials.

## Group C

Answer **any one** question: 10x1=10

5. a) Define the following terms:

i) Eutomer and Distomer

ii) Affinity and Efficacy.

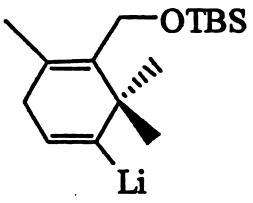
iii) Agonist and Antagonist

iv) $ED_{50}$ and $LD_{50}$ 4x2=8

b) The $LD_{50}$ for a potential antiobesity compound was found to be 15 mg/Kg and the $ED_{50}$ was 3 mg/Kg. Is this an important drug candidate? Why? 2

6. a) Show the steps for conversion to Taxol anti-cancer intermediate (A) from ethylacetoacteate. 4

A



b) Write down the structures of Penicillin 'V' and 'F'. How can you synthesize Pencillin 'V' from easily available starting materials? 6

## Group D

Answer **any one** question: 10x1=10

7. a) Write down the mechanism of action of β-lactum antibiotics. 4

   b) Synthesis 'ceftazidime' from EAA. 6

8. a) What is Eudismic ratio? What problems are associated with administrative of racemate drugs? How can you increase the Eudismic ratio?

   b) Show the structures of folic acid and the anti-cancer drug methotrexate. Alkylating agents are used in cancer chemotherapy to interfere with DNA biosynthesis or replication. Why are these useful considering that normal cells also need DNA? 4

   c) What properties would you incorporate into the design of DNA intercalating agents?