PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION JUNE 2014
(Sixth Semester)

Branch – **CHEMISTRY**

ANALYTICAL CHEMISTRY AND INSTRUMENTAL METHODS OF ANALYSIS

Time : Three Hours Maximum : 75 Marks

SECTION-A (20 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 x 2 = 20)

1 What are significant numbers?
2 Define standard deviation.
3 State Lambert's Beer's Law and give the mathematical expression.
4 What are the conditions for a molecule to be IR active?
5 What is shielding effect?
6 Explain hyperfine splitting in ESR.
7 Explain what is TGA.
8 What precautions to be adopted regarding TG?
9 Write the Ilkovic equation and expand the terms.
10 Define migration current.

SECTION - B (25 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

11 a Define mean and median. Give examples for your answer.
OR
b What are different methods of reporting analytical data?

12 a Write a note on any three transition in UV spectr.
OR
b Write a note on sampling techniques in IR.

13 a Explain the Instrumentation involved in NMR.
OR
b Give the Principle involved in ESR. What is 'g' factor?

14 a Explain the Instrumentation involved in DTA.
OR
b What are the advantages of DTA curves over TGA curves?

15 a What are the limitations of the dropping mercury electrode?
OR
b Write a note on DME assembly.

SECTION - C (30 Marks)
Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16 What are Errors? How are they classified? Explain in detail.
17 a Write a note on duboseq calorimeter. (7)
b What is finger print region? (3)
18 Predict the NMR spectrum of
i) Ethyl alcohol ii) Aniline iii) Toluene
19 Write the applications of DTA & TGA.
20 a Define the following (6)
i) Residual current
ii) Concentrations Polarisation
iii) Half wave potential
b What are the advantages of DME? (4)

Z-Z-Z END