Or

(b) How do you determine total nitrogen and phosphorous in soil ?

6. (a) Explain the classification of errors in analytical experiments. How do you evaluate random errors by following statistical methods ?

Or

(b) How do you determine the ultimate analysis of coal ?

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2017

Time : 3 hours

Full Marks : 80

Answer from **both** the Sections as per direction

The figures in the right-hand margin indicate marks

(ANALYTICAL CHEMISTRY-II)

SECTION – A

1. Answer any *four* of the following :   4 × 4

   (a) Write the working principle of Differential Thermal Analyser (DTA).

   (b) Explain the working principle of dropping mercury electrode.

   (c) Draw and explain the TGA curve of any oxalate salt.

   (d) Explain the working principle of cyclic voltametry.

(e) How do you determine moisture content in soil ?

(f) Write about the minimization of errors in analytical experiments.

Or

2. Answer *all* questions from the following : 2 × 8

(a) Write the important compounds and uses of Differential Thermal Analyser.

(b) State and explain Ilkovic equation.

(c) What is meant by residual current ?

(d) Write about the common adulterants in food.

(e) How do you determine pH of the soil ?

(f) What are the detectors used in HPLC ?

(g) Define octane number.

(h) Define standard deviation.

SECTION – B

Answer all questions :   16 × 4

3. (a) Describe the theory and working principle of Thermo Gravimetric Analyser (TGA). Write the applications of TGA in the study of reaction kinetics.

Or

(b) Describe the separation of Ca, Sr and Ba by thermal methods of analysis.

4. (a) Explain the instrumentation and working principle of polarography. Write its applications.

Or

(b) Describe the theory, instrumentation and working principle of cyclic voltametry.

5. (a) How do you analyse pesticide content in food products ?