

B.TECH. SEM -VI (CHEMICAL 2014 COURSE (CBCS) :

SUMMER - 2018

**SUBJECT: PROCESS INSTRUMENTATION & INSTRUMENTAL
METHODS OF ANALYSIS**

Day: **Friday**
Date: **08/06/2018**

S-2018-2388

Time: **02.30 PM TO 05.30 PM**
Max Marks. 60

N.B.

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Assume suitable data, if necessary.
 - 4) Draw neat and labeled diagram **WHEREVER** necessary.
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- Q.1** Describe manual type optical pyrometer in detail. Give its advantages. (10)
OR
- a) Write a note on Thomson effect. (04)
b) Give principle, construction and working of Radiation pyrometer with diagram. (06)
- Q.2** a) Why mass spectrometer is preferred for analyzing isotopes. (04)
b) Explain Karl fisher Titration in detail. (06)
OR
- a) Describe deviation from Beer's law. (06)
b) Describe the following (04)
i) pH
ii) Spectroscopy
- Q.3** Give measurement techniques of conductometry. Explain any one. (10)
OR
- a) Explain the following terms (06)
i) Conductometry
ii) Spectrophotometry
iii) Refractometry
b) Give applications of refractometry. (04)
- Q.4** a) Write note on development of chromatography. (06)
b) Describe the branches of gas chromatography. (04)
OR
Give principle, construction and working for gas chromatography analyzer. (10)
- Q.5** a) Explain first order and second order system. (06)
b) What is an ideal forcing functions? (04)
OR
Explain input – output model in detail. (10)
- Q.6** a) What are control loops? (04)
b) Give general criteria to draw piping & instrumentation diagram. (06)
OR
Explain (P+I+D) mode in detail. (10)