B.Tech. SEM -VI (Chemical 2014 Course (CBCS) : SUMMER - 2019

SUBJECT: PROCESS INSTRUMENTATION AND INSTRUMENTAL METHODS OF ANALYSIS

Date: Wednesday
Day: 29/05/2019

S-2019-2708

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.

Q.1 **a)** Describe the static characteristics of measuring instrument in brief. **(06)**
b) Explain common types of air transducers. **(04)**

OR

Q.1 Describe operating principle, construction and working of bimetallic thermometer with neat diagram **(10)**

Q.2 Explain construction and working of rapid scan spectrophotometer **(10)**

OR

Q.2 **a)** Give classification of instrumental methods. **(06)**
b) Give properties of electromagnetic radiation **(04)**

Q.3 **a)** Give applications, advantages and disadvantages of conductometry. **(06)**
b) Write applications of turbidimetry and nephelometry. **(04)**

OR

Q.3 What is refractometry? Describe principle, construction and application of refractometer. **(10)**

Q.4 Discuss working, principles and operation of GC with support of neat sketch and examples. **(10)**

OR

Q.4 How chromatography is superior separation technique over other techniques like melting, boiling, evaporation, drying etc? **(10)**

Q.5 **a)** Define first order system. Explain the dynamic behavior of first order system. **(06)**
b) Give properties of transfer function **(04)**

OR

Q.5 Explain in detail transfer function models in chemical process. Give example of it. **(10)**

Q.6 Explain control law and closed loop response for PI control action. **(10)**

OR

Q.6 Describe integral control action and its limitations in details **(10)**

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