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Total Number of Pages : 01

M.Tech.
P2EVCC14

2nd Semester Regular Examination 2017-18
INSTRUMENTAL METHODS FOR ENVIRONMENTAL ANALYSIS
BRANCH : ENVIRONMENTAL ENGG.,
ENVIRONMENTAL SCIENCE AND ENGG

Time : 3 Hours

Max Marks : 100

Q.CODE : C1073

Answer Question No.1 which is compulsory and any FOUR from the rest.

The figures in the right hand margin indicate marks.

Answer all parts of a question at a place.

- Q1 Answer the following questions: *Short answer type:* (2 x 10)**
- a) What is the principle behind spectrophotometry?
 - b) What is the importance of quantitative analysis?
 - c) Give two applications of gas chromatography.
 - d) What do you mean by kjeldahl nitrogen?
 - e) What is the use of mass spectroscopy?
 - f) Define volumetric analysis. Give two of its use.
 - g) State Beer's Lambert's law.
 - h) What is the principle behind AAS?
 - i) Why do we perform X-ray diffraction?
 - j) Which instrument is used to perform cation and anion analysis?
- Q2 a) Discuss about the principle of instrumentation. (10)**
b) What are the applications of instrumental analysis? (10)
- Q3 a) What is chromatography? How do you classify chromatography? How does it work? (10)**
b) Give the working operation of a gas chromatograph. Which types of columns are used in them? (10)
- Q4 a) Define absorbance and transmittance. Discuss about beer's law and its application in spectroscopy. (10)**
b) Differentiate between a spectrophotometer and flame photometer. (10)
- Q5 a) Discuss about the principle and application of HPLC. (10)**
b) Explain fluorescence. What is its use? (10)
- Q6 a) What is an ion selective electrode? How is it operated? What is its use? (10)**
b) Discuss about the principle and working of a polarography.. (10)
- Q7 a) Discuss about cyclic voltammetry. (10)**
b) Give an account of the biosensors used for parameter monitoring. (10)