Code No: RR222304 **RR** **Set No. 2**

II B.Tech II Semester Examinations,December 2010
INSTRUMENTAL METHODS OF ANALYSIS
Bio-Technology

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the suitable instrumental methods used for the analysis of
   i. gaseous mixtures,
   ii. alloys and ores
   iii. traces of metal ions
   (b) Write notes on
   i. Comparison with standards
   ii. Standard addition method
   (c) Write notes on
   i. Problems in analysis
   ii. Methods of analysis [5+5+6]
2. (a) Differentiate between partition coefficient and distribution coefficient.
   (b) Complexing agents in solvent extracation. [6+10]
3. (a) How will you determine metallic elements in food industry using Atomic absorption spectroscopy?
   (b) How will you determine Ca, Mg, Na, and K in blood serum using Atomic absorption spectroscopy? [8+8]
4. Write short notes on the following UV applications:
   (a) Chemical kinetics
   (b) Charge transfer transitions
   (c) Dissociation constants of acids and bases. [5+5+6]
5. (a) Explain and give examples of the types of transitions which occur inorganic compounds.
   (b) Arrange the following transitions in order of decreasing energy
   $n \rightarrow \pi^*, \pi \rightarrow \pi^*, \sigma \rightarrow \sigma^*$
   (c) What are the requirements for a solvent to be used in UV spectroscopy and why is ethanol considered as good solvent in UV. [8+3+5]
6. (a) What is spin-spin splitting?
   (b) A methylene group(CH_2) is adjacent to a CH group. Into how many peaks is the CH_2 peak split by the single adjacent hydrogen? [8+8]

7. Discuss applications of ESR with suitable examples. [16]

8. Write notes on

   (a) Laser Microscope

   (b) RF Plasma

   (c) Background spectra

   (d) Comparison between absorption and emission methods. [4+4+4+4]

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Code No: RR222304 **RR** **Set No. 4**

II B.Tech II Semester Examinations,December 2010
INSTRUMENTAL METHODS OF ANALYSIS
Bio-Technology

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Differentiate between partition coefficient and distribution coefficient.
   (b) Complexing agents in solvent extracation. [6+10]
2. (a) What are the suitable instrumental methods used for the analysis of
      i. gaseous mixtures,
      ii. alloys and ores
      iii. traces of metal ions
   (b) Write notes on
      i. Comparison with standards
      ii. Standard addition method
   (c) Write notes on
      i. Problems in analysis
      ii. Methods of analysis [5+5+6]
3. Write short notes on the following UV applications:
   (a) Chemical kinetics
   (b) Charge transfer transitions
   (c) Dissociation constants of acids and bases. [5+5+6]
4. Write notes on
   (a) Laser Microscope
   (b) RF Plasma
   (c) Background spectra
   (d) Comparison between absorption and emission methods. [4+4+4+4]
5. Discuss applications of ESR with suitable examples. [16]
6. (a) What is spin-spin splitting?
   (b) A methylene group(CH_2) is adjacent to a CH group. Into how many peaks is the CH_2 peak split by the single adjacent hydrogen? [8+8]
7. (a) How will you determine metallic elements in food industry using Atomic absorption spectroscopy?

(b) How will you determine Ca, Mg, Na, and K in blood serum using Atomic absorption spectroscopy? [8+8]

8. (a) Explain and give examples of the types of transitions which occur inorganic compounds.

(b) Arrange the following transitions in order of decreasing energy
$n \rightarrow \pi^*, \pi \rightarrow \pi^*, \sigma \rightarrow \sigma^*$

(c) What are the requirements for a solvent to be used in UV spectroscopy and why is ethanol considered as good solvent in UV. [8+3+5]

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Code No: RR222304 **RR** **Set No. 1**

II B.Tech II Semester Examinations,December 2010
INSTRUMENTAL METHODS OF ANALYSIS
Bio-Technology

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Differentiate between partition coefficient and distribution coefficient.
   (b) Complexing agents in solvent extracation. [6+10]
2. (a) How will you determine metallic elements in food industry using Atomic absorption spectroscopy?
   (b) How will you determine Ca, Mg, Na, and K in blood serum using Atomic absorption spectroscopy? [8+8]
3. (a) What is spin-spin splitting?
   (b) A methylene group(CH_2) is adjacent to a CH group. Into how many peaks is the CH_2 peak split by the single adjacent hydrogen? [8+8]
4. Discuss applications of ESR with suitable examples. [16]
5. Write notes on
   (a) Laser Microscope
   (b) RF Plasma
   (c) Background spectra
   (d) Comparison between absorption and emission methods. [4+4+4+4]
6. (a) Explain and give examples of the types of transitions which occur inorganic compounds.
   (b) Arrange the following transitions in order of decreasing energy
   $n \rightarrow \pi^*, \pi \rightarrow \pi^*, \sigma \rightarrow \sigma^*$
   (c) What are the requirements for a solvent to be used in UV spectroscopy and why is ethanol considered as good solvent in UV. [8+3+5]
7. (a) What are the suitable instrumental methods used for the analysis of
      i. gaseous mixtures,
      ii. alloys and ores
      iii. traces of metal ions
   (b) Write notes on
      i. Comparison with standards
      ii. Standard addition method

(c) Write notes on

i. Problems in analysis

ii. Methods of analysis [5+5+6]

8. Write short notes on the following UV applications:

(a) Chemical kinetics

(b) Charge transfer transitions

(c) Dissociation constants of acids and bases. [5+5+6]

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Code No: RR222304 **RR** **Set No. 3**

II B.Tech II Semester Examinations,December 2010
INSTRUMENTAL METHODS OF ANALYSIS
Bio-Technology

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the suitable instrumental methods used for the analysis of
   i. gaseous mixtures,
   ii. alloys and ores
   iii. traces of metal ions
   (b) Write notes on
   i. Comparison with standards
   ii. Standard addition method
   (c) Write notes on
   i. Problems in analysis
   ii. Methods of analysis [5+5+6]
2. (a) Differentiate between partition coefficient and distribution coefficient.
   (b) Complexing agents in solvent extracation. [6+10]
3. (a) How will you determine metallic elements in food industry using Atomic absorption spectroscopy?
   (b) How will you determine Ca, Mg, Na, and K in blood serum using Atomic absorption spectroscopy? [8+8]
4. (a) What is spin-spin splitting?
   (b) A methylene group(CH_2) is adjacent to a CH group. Into how many peaks is the CH_2 peak split by the single adjacent hydrogen? [8+8]
5. (a) Explain and give examples of the types of transitions which occur inorganic compounds.
   (b) Arrange the following transitions in order of decreasing energy
   $n \rightarrow \pi^*, \pi \rightarrow \pi^*, \sigma \rightarrow \sigma^*$
   (c) What are the requirements for a solvent to be used in UV spectroscopy and why is ethanol considered as good solvent in UV. [8+3+5]
6. Discuss applications of ESR with suitable examples. [16]
7. Write notes on
   (a) Laser Microscope
   (b) RF Plasma

(c) Background spectra

(d) Comparison between absorption and emission methods. [4+4+4+4]

8. Write short notes on the following UV applications:

(a) Chemical kinetics

(b) Charge transfer transitions

(c) Dissociation constants of acids and bases. [5+5+6]

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