Code No: RR411001 **RR** **Set No. 2**

IV B.Tech I Semester Examinations,November 2010
ANALYTICAL INSTRUMENTATION
Electronics And Instrumentation Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the terms relative efficiency, selectivity and resolution of chromatographic columns in detail? [16]
2. With neat block diagram, explain about the constructional details of NMR spectrometer. [16]
3. Explain the principle of Fourier transform spectrometry. How is it adopted in IR methods of analysis? [16]
4. (a) With neat block diagram explain any one type of sodium analyzer.
   (b) Write short notes on clinical sodium analyzer. [10+6]
5. (a) Explain the operation of multi channel type instrument to calculate focal length of a monochromator.
   (b) If the order used in an echelle grating is 70 and a dispersion angle 60^0, groove density 80/mm and focal length 0.5 m, Obtain the reciprocal linear dispersion and resolution. [6+10]
6. How co laser can be used for the measurement of nitric oxide. Give a neat block diagram and explain the operation of each block clearly. [16]
7. With schematic diagram explain the following pH meters.
   (a) Null - Detector type pH meter
   (b) Direct reading pH meter. [12+4]
8. Explain the constructional details and principle of operation of
   (a) surface barrier detector.
   (b) lithium drifted germanium detector. [8+8]

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Code No: RR411001 **RR** **Set No. 4**

IV B.Tech I Semester Examinations,November 2010
ANALYTICAL INSTRUMENTATION
Electronics And Instrumentation Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain the operation of multi channel type instrument to calculate focal length of a monochromator.
   (b) If the order used in an echelle grating is 70 and a dispersion angle 60^0, groove density 80/mm and focal length 0.5 m, Obtain the reciprocal linear dispersion and resolution. [6+10]
2. Explain the principle of Fourier transform spectrometry. How is it adopted in IR methods of analysis? [16]
3. How co laser can be used for the measurement of nitric oxide. Give a neat block diagram and explain the operation of each block clearly. [16]
4. (a) With neat block diagram explain any one type of sodium analyzer.
   (b) Write short notes on clinical sodium analyzer. [10+6]
5. With schematic diagram explain the following pH meters.
   (a) Null - Detector type pH meter
   (b) Direct reading pH meter. [12+4]
6. Explain the constructional details and principle of operation of
   (a) surface barrier detector.
   (b) lithium drifted germanium detector. [8+8]
7. With neat block diagram, explain about the constructional details of NMR spectrometer. [16]
8. Explain the terms relative efficiency, selectivity and resolution of chromatographic columns in detail? [16]

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Code No: RR411001 **RR** **Set No. 1**

IV B.Tech I Semester Examinations,November 2010
ANALYTICAL INSTRUMENTATION
Electronics And Instrumentation Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the terms relative efficiency, selectivity and resolution of chromatographic columns in detail? [16]
2. With schematic diagram explain the following pH meters.
   (a) Null - Detector type pH meter
   (b) Direct reading pH meter. [12+4]
3. (a) Explain the operation of multi channel type instrument to calculate focal length of a monochromator.
   (b) If the order used in an echelle grating is 70 and a dispersion angle 60^0, groove density 80/mm and focal length 0.5 m, Obtain the reciprocal linear dispersion and resolution. [6+10]
4. (a) With neat block diagram explain any one type of sodium analyzer.
   (b) Write short notes on clinical sodium analyzer. [10+6]
5. Explain the principle of Fourier transform spectrometry. How is it adopted in IR methods of analysis? [16]
6. How co laser can be used for the measurement of nitric oxide. Give a neat block diagram and explain the operation of each block clearly. [16]
7. Explain the constructional details and principle of operation of
   (a) surface barrier detector.
   (b) lithium drifted germanium detector. [8+8]
8. With neat block diagram, explain about the constructional details of NMR spectrometer. [16]

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Code No: RR411001 **RR** **Set No. 3**

IV B.Tech I Semester Examinations,November 2010
ANALYTICAL INSTRUMENTATION
Electronics And Instrumentation Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the terms relative efficiency, selectivity and resolution of chromatographic columns in detail? [16]

2. (a) Explain the operation of multi channel type instrument to calculate focal length of a monochromator.
   (b) If the order used in an echelle grating is 70 and a dispersion angle 60^0, groove density 80/mm and focal length 0.5 m, Obtain the reciprocal linear dispersion and resolution. [6+10]

3. Explain the principle of Fourier transform spectrometry. How is it adopted in IR methods of analysis? [16]

4. (a) With neat block diagram explain any one type of sodium analyzer.
   (b) Write short notes on clinical sodium analyzer. [10+6]

5. How co laser can be used for the measurement of nitric oxide. Give a neat block diagram and explain the operation of each block clearly. [16]

6. With neat block diagram, explain about the constructional details of NMR spectrometer. [16]

7. Explain the constructional details and principle of operation of
   (a) surface barrier detector.
   (b) lithium drifted germanium detector. [8+8]

8. With schematic diagram explain the following pH meters.
   (a) Null - Detector type pH meter
   (b) Direct reading pH meter. [12+4]

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