Code No: R05412202 **R05** **Set No. 2**

IV B.Tech I Semester Examinations, November 2010
BIO-MEDICAL INSTRUMENTATION
Instrumentation And Control Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Briefly mention about the working of birds ventilator.
   (b) Explain impedance pnelungmograph with block diagram. [8+8]
2. (a) Bring out the relation between the electrical and mechanical activities of the heart.
   (b) Describe in detail about a heart- lung machine. [10+6]
3. (a) Explain the electro physiology of a nerve and explain how an impulse is transmitted from nerve to muscle.
   (b) Explain the generation of bio- electric potentials associated with the muscles of the heart. [10+6]
4. (a) With neat diagrams, explain the importance of chopper amplifiers in biomedical Instrumentation .
   (b) Explain briefly about the need of following amplifiers in Bio-medical instrumentation.
      i. Bridge voltage amplifier
      ii. Buffer amplifier
      iii. Current amplifier [7+9]
5. (a) Give the salient features of needle electrodes. Give their applications.
   (b) List out various bio medical electrodes and give their applications. [8+8]
6. (a) Explain any one method of direct measurement of blood pressure. The blood flow is measured for a person using indicator dilution method. The indicator is injected at the rate of 12 milligrams per minute. After sometime the concentration of the indicator reaches a constant value of 3milligrams per liter. Calculate the blood flow rate in terms of liters per minute.
   (b) With the help of a schematic explain the working of Doppler method of blood flow measurement. [10+6]
7. (a) Describe various load configurations that can be used to record EEG signals.
   (b) Write about the electrodes used in EMG. [8+8]
8. Mention the principle of parallel plate dialyser. Explain in detail a Kill dialyser. [16]

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Code No: R05412202 **R05** **Set No. 4**

IV B.Tech I Semester Examinations, November 2010
BIO-MEDICAL INSTRUMENTATION
Instrumentation And Control Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) With neat diagrams, explain the importance of chopper amplifiers in biomedical Instrumentation .
   (b) Explain briefly about the need of following amplifiers in Bio-medical instrumentation.
      i. Bridge voltage amplifier
      ii. Buffer amplifier
      iii. Current amplifier [7+9]
2. (a) Explain any one method of direct measurement of blood pressure. The blood flow is measured for a person using indicator dilution method. The indicator is injected at the rate of 12 milligrams per minute. After sometime the concentration of the indicator reaches a constant value of 3milligrams per liter. Calculate the blood flow rate in terms of liters per minute.
   (b) With the help of a schematic explain the working of Doppler method of blood flow measurement. [10+6]
3. (a) Briefly mention about the working of birds ventilator.
   (b) Explain impedance pnelungmograph with block diagram. [8+8]
4. Mention the principle of parallel plate dialyser. Explain in detail a Kill dialyser. [16]
5. (a) Bring out the relation between the electrical and mechanical activities of the heart.
   (b) Describe in detail about a heart- lung machine. [10+6]
6. (a) Describe various load configurations that can be used to record EEG signals.
   (b) Write about the electrodes used in EMG. [8+8]
7. (a) Give the salient features of needle electrodes. Give their applications.
   (b) List out various bio medical electrodes and give their applications. [8+8]
8. (a) Explain the electro physiology of a nerve and explain how an impulse is transmitted from nerve to muscle.
   (b) Explain the generation of bio- electric potentials associated with the muscles of the heart. [10+6]

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Code No: R05412202 **R05** **Set No. 1**

IV B.Tech I Semester Examinations, November 2010

BIO-MEDICAL INSTRUMENTATION

Instrumentation And Control Engineering

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

Answer any FIVE Questions

All Questions carry equal marks

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1. (a) Describe various load configurations that can be used to record EEG signals.
   (b) Write about the electrodes used in EMG. [8+8]
2. Mention the principle of parallel plate dialyser. Explain in detail a Kill dialyser. [16]
3. (a) Briefly mention about the working of birds ventilator.
   (b) Explain impedance pnelungmograph with block diagram. [8+8]
4. (a) Explain the electro physiology of a nerve and explain how an impulse is transmitted from nerve to muscle.
   (b) Explain the generation of bio- electric potentials associated with the muscles of the heart. [10+6]
5. (a) Explain any one method of direct measurement of blood pressure. The blood flow is measured for a person using indicator dilution method. The indicator is injected at the rate of 12 milligrams per minute. After sometime the concentration of the indicator reaches a constant value of 3milligrams per liter. Calculate the blood flow rate in terms of liters per minute.
   (b) With the help of a schematic explain the working of Doppler method of blood flow measurement. [10+6]
6. (a) Give the salient features of needle electrodes. Give their applications.
   (b) List out various bio medical electrodes and give their applications. [8+8]
7. (a) Bring out the relation between the electrical and mechanical activities of the heart.
   (b) Describe in detail about a heart- lung machine. [10+6]
8. (a) With neat diagrams, explain the importance of chopper amplifiers in biomedical Instrumentation .
   (b) Explain briefly about the need of following amplifiers in Bio-medical instrumentation.
      i. Bridge voltage amplifier
      ii. Buffer amplifier
      iii. Current amplifier [7+9]

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Code No: R05412202 **R05** **Set No. 3**

IV B.Tech I Semester Examinations, November 2010
BIO-MEDICAL INSTRUMENTATION
Instrumentation And Control Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Mention the principle of parallel plate dialyser. Explain in detail a Kill dialyser. [16]

2. (a) Explain the electro physiology of a nerve and explain how an impulse is transmitted from nerve to muscle.
   (b) Explain the generation of bio- electric potentials associated with the muscles of the heart. [10+6]

3. (a) With neat diagrams, explain the importance of chopper amplifiers in biomedical Instrumentation .
   (b) Explain briefly about the need of following amplifiers in Bio-medical instrumentation.
      i. Bridge voltage amplifier
      ii. Buffer amplifier
      iii. Current amplifier [7+9]

4. (a) Describe various load configurations that can be used to record EEG signals.
   (b) Write about the electrodes used in EMG. [8+8]

5. (a) Bring out the relation between the electrical and mechanical activities of the heart.
   (b) Describe in detail about a heart- lung machine. [10+6]

6. (a) Briefly mention about the working of birds ventilator.
   (b) Explain impedance pnelungmograph with block diagram. [8+8]

7. (a) Give the salient features of needle electrodes. Give their applications.
   (b) List out various bio medical electrodes and give their applications. [8+8]

8. (a) Explain any one method of direct measurement of blood pressure. The blood flow is measured for a person using indicator dilution method. The indicator is injected at the rate of 12 milligrams per minute. After sometime the concentration of the indicator reaches a constant value of 3milligrams per liter. Calculate the blood flow rate in terms of liters per minute.
   (b) With the help of a schematic explain the working of Doppler method of blood flow measurement. [10+6]

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