

**Code No: 54027**

**Set No. 1**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**II B.Tech. II Sem., II Mid-Term Examinations, April – 2014**

**BIOTRANSDUCERS AND APPLICATIONS**

**Objective Exam**

**Name: \_\_\_\_\_ Hall Ticket No.**

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**Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.**

**I Choose the correct alternative:**

1. 1 bar=  
a. 100 N/m<sup>2</sup>                      b. 1000 N/m<sup>2</sup>                      c. 10000 N/m<sup>2</sup>                      d. 100000 N/m<sup>2</sup> [       ]
2. Opening of the artery generates high frequency signal of \_\_\_\_.  
a. 30 to 100Hz                      b. 200 to 500 Hz                      c. 1000 to 2000Hz                      d. 500 to 1000Hz [       ]
3. During the BP measurement, stethoscope is used to measure \_\_\_\_  
a. Korotkoff sounds    b. Heart murmurs                      c. systolic only                      d. Blood Flow [       ]
4. Boyle's law for measurement of pressure is given by  
a.  $P_1/V_1 = P_2/V_2$                       b.  $P_1V_1 = P_2V_2$                       c.  $P_1+V_1 = P_2+V_2$                       d.  $P_1-V_1=P_2-V_2$  [       ]
5. \_\_\_\_\_ is used to measure intra amniotic pressure  
a. Ultrasound transducer                      b. Force Balance method  
c. Sphygmomanometer                      d. stethoscope [       ]
6. \_\_\_\_\_ type of transmission is often used for biotelemetry  
a. AM                      b. FM                      c. PM                      d. FSK [       ]
7. \_\_\_\_\_ Amplifier is used in ECG telemetry system  
a. Class – A                      b. Class – b                      c. Class – c                      d. None of the above [       ]
8. For an ideal Operational Amplifier, CMRR should be \_\_\_\_  
a. Very high                      b. infinity                      c. Zero                      d. very less [       ]
9. To operate over a narrow band of frequencies \_\_\_\_\_ amplifier is used  
a. Chopper                      b. instrumentation                      c. Differential                      d. carrier [       ]
10. Differentiator acts as a \_\_\_\_  
a. LPF                      b. HPF                      c. Median Filter                      d. BPF [       ]

**Cont....2**

**II Fill in the blanks:**

11. A barometer measures a pressure of 750 mm Hg during a snowstorm. Convert this pressure to atmosphere \_\_\_\_\_
12. The mercury in a manometer rises at a height of 120 mm hg. then the absolute pressure is \_\_\_\_\_
13. A patient's blood pressure is measured as systolic 120mm Hg and a diastolic of 80 mm Hg. the mean arterial pressure is \_\_\_\_\_
14. Force balance method is used to measure \_\_\_\_\_
15. Sphygmomanometer is the measuring instrument used to measure \_\_\_\_\_
16. Find the potential generated if blood flowing in a vessel with a radius of 0.9cm cut's a magnetic field of 250 G. Assume a volume flow rate of  $175 \text{ cm}^3/\text{sec}$ . \_\_\_\_\_
17. The process of transmitting many channels of data on a single radio frequency carrier is called \_\_\_\_\_
18. Is the gain A of an inverting follower. if the feedback resistor is 120 k ohms and the input resistor is 12 k ohms.
19. For an ideal Operational Amplifier, the input impedance is \_\_\_\_\_
20. On differentiating an input from displacement transducer the output is \_\_\_\_\_

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Set No. 2

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Objective Exam

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

**I Choose the correct alternative:**

1. Boyle's law for measurement of pressure is given by [      ]  
a.  $P_1/V_1 = P_2/V_2$       b.  $P_1V_1 = P_2V_2$       c.  $P_1+V_1 = P_2+V_2$       d.  $P_1-V_1=P_2-V_2$
2. \_\_\_\_\_ is used to measure intra amniotic pressure [      ]  
a. Ultrasound transducer      b. Force Balance method  
c. Sphygmomanometer      d. stethoscope
3. \_\_\_\_\_ type of transmission is often used for biotelemetry [      ]  
a. AM      b. FM      c. PM      d. FSK
4. \_\_\_\_\_ Amplifier is used in ECG telemetry system [      ]  
a. Class – A      b. Class – b      c. Class – c      d. None of the above
5. For an ideal Operational Amplifier, CMRR should be \_\_\_\_\_ [      ]  
a. Very high      b. infinity      c. Zero      d. very less
6. To operate over a narrow band of frequencies \_\_\_\_\_ amplifier is used [      ]  
a. Chopper      b. instrumentation      c. Differential      d. carrier
7. Differentiator acts as a \_\_\_\_\_ [      ]  
a. LPF      b. HPF      c. Median Filter      d. BPF
8. 1 bar= [      ]  
a. 100 N/m<sup>2</sup>      b. 1000 N/m<sup>2</sup>      c. 10000 N/m<sup>2</sup>      d. 100000 N/m<sup>2</sup>
9. Opening of the artery generates high frequency signal of \_\_\_\_\_. [      ]  
a. 30 to 100Hz      b. 200 to 500 Hz      c. 1000 to 2000Hz      d. 500 to 1000Hz
10. During the BP measurement, stethoscope is used to measure \_\_\_\_\_ [      ]  
a. Korotkoff sounds      b. Heart murmurs      c. systolic only      d. Blood Flow

**Cont....2**

**II Fill in the blanks:**

11. Force balance method is used to measure \_\_\_\_\_
12. Sphygmomanometer is the measuring instrument used to measure\_\_\_\_\_
13. Find the potential generated if blood flowing in a vessel with a radius of 0.9cm cut's a magnetic field of 250 G. Assume a volume flow rate of  $175 \text{ cm}^3/\text{sec}$ . \_\_\_\_\_
14. The process of transmitting many channels of data on a single radio frequency carrier is called \_\_\_\_\_
15. Is the gain A of an inverting follower. if the feedback resistor is 120 k ohms and the input resistor is 12 k ohms.
16. For an ideal Operational Amplifier, the input impedance is \_\_\_\_\_
17. On differentiating an input from displacement transducer the output is \_\_\_\_\_
18. A barometer measures a pressure of 750 mm Hg during a snowstorm. Convert this pressure to atmosphere \_\_\_\_\_
19. The mercury in a manometer rises at a height of 120 mm hg. then the absolute pressure is \_\_\_\_\_
20. A patient's blood pressure is measured as systolic 120mm Hg and a diastolic of 80 mm Hg. the mean arterial pressure is \_\_\_\_\_

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**Set No. 3**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

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**Objective Exam**

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**Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.**

**I Choose the correct alternative:**

1. \_\_\_\_\_ type of transmission is often used for biotelemetry [      ]  
a. AM                      b. FM                      c. PM                      d. FSK
2. \_\_\_\_\_ Amplifier is used in ECG telemetry system [      ]  
a. Class – A              b. Class – b              c. Class – c              d. None of the above
3. For an ideal Operational Amplifier, CMRR should be \_\_\_\_\_ [      ]  
a. Very high              b. infinity              c. Zero                      d. very less
4. To operate over a narrow band of frequencies \_\_\_\_\_ amplifier is used [      ]  
a. Chopper              b. instrumentation      c. Differential              d. carrier
5. Differentiator acts as a \_\_\_\_\_ [      ]  
a. LPF                      b. HPF                      c. Median Filter              d. BPF
6. 1 bar= [      ]  
a. 100 N/m<sup>2</sup>              b. 1000 N/m<sup>2</sup>              c. 10000 N/m<sup>2</sup>              d. 100000 N/m<sup>2</sup>
7. Opening of the artery generates high frequency signal of \_\_\_\_\_. [      ]  
a. 30 to 100Hz              b. 200 to 500 Hz              c. 1000 to 2000Hz              d. 500 to 1000Hz
8. During the BP measurement, stethoscope is used to measure \_\_\_\_\_ [      ]  
a. Korotkoff sounds      b. Heart murmurs              c. systolic only              d. Blood Flow
9. Boyle's law for measurement of pressure is given by [      ]  
a.  $P_1/V_1 = P_2/V_2$               b.  $P_1V_1 = P_2V_2$               c.  $P_1+V_1 = P_2+V_2$               d.  $P_1-V_1=P_2-V_2$
10. \_\_\_\_\_ is used to measure intra amniotic pressure [      ]  
a. Ultrasound transducer              b. Force Balance method  
c. Sphygmomanometer                      d. stethoscope

**Cont....2**

**II Fill in the blanks:**

11. Find the potential generated if blood flowing in a vessel with a radius of 0.9cm cut's a magnetic field of 250 G. Assume a volume flow rate of  $175 \text{ cm}^3/\text{sec}$ . \_\_\_\_\_
12. The process of transmitting many channels of data on a single radio frequency carrier is called \_\_\_\_\_
13. Is the gain A of an inverting follower. if the feedback resistor is 120 k ohms and the input resistor is 12 k ohms. \_\_\_\_\_
14. For an ideal Operational Amplifier, the input impedance is \_\_\_\_\_
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16. A barometer measures a pressure of 750 mm Hg during a snowstorm. Convert this pressure to atmosphere \_\_\_\_\_
17. The mercury in a manometer rises at a height of 120 mm hg. then the absolute pressure is \_\_\_\_\_
18. A patient's blood pressure is measured as systolic 120mm Hg and a diastolic of 80 mm Hg. the mean arterial pressure is \_\_\_\_\_
19. Force balance method is used to measure \_\_\_\_\_
20. Sphygmomanometer is the measuring instrument used to measure \_\_\_\_\_

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Set No. 4

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

**I Choose the correct alternative:**

1. For an ideal Operational Amplifier, CMRR should be \_\_\_\_\_ [     ]  
a. Very high                      b. infinity                      c. Zero                      d. very less
2. To operate over a narrow band of frequencies \_\_\_\_\_ amplifier is used [     ]  
a. Chopper                      b. instrumentation                      c. Differential                      d. carrier
3. Differentiator acts as a \_\_\_\_\_ [     ]  
a. LPF                      b. HPF                      c. Median Filter                      d. BPF
4. 1 bar= \_\_\_\_\_ [     ]  
a. 100 N/m<sup>2</sup>                      b. 1000 N/m<sup>2</sup>                      c. 10000 N/m<sup>2</sup>                      d. 100000 N/m<sup>2</sup>
5. Opening of the artery generates high frequency signal of \_\_\_\_\_. [     ]  
a. 30 to 100Hz                      b. 200 to 500 Hz                      c. 1000 to 2000Hz                      d. 500 to 1000Hz
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a. Korotkoff sounds                      b. Heart murmurs                      c. systolic only                      d. Blood Flow
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a.  $P_1/V_1 = P_2/V_2$                       b.  $P_1V_1 = P_2V_2$                       c.  $P_1+V_1 = P_2+V_2$                       d.  $P_1-V_1 = P_2-V_2$
8. \_\_\_\_\_ is used to measure intra amniotic pressure [     ]  
a. Ultrasound transducer                      b. Force Balance method  
c. Sphygmomanometer                      d. stethoscope
9. \_\_\_\_\_ type of transmission is often used for biotelemetry [     ]  
a. AM                      b. FM                      c. PM                      d. FSK
10. \_\_\_\_\_ Amplifier is used in ECG telemetry system [     ]  
a. Class – A                      b. Class – b                      c. Class – c                      d. None of the above

Cont....2

**II Fill in the blanks:**

11. Is the gain  $A$  of an inverting follower. if the feedback resistor is 120 k ohms and the input resistor is 12 k ohms.
12. For an ideal Operational Amplifier, the input impedance is \_\_\_\_\_
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