



**Avinashilingam Institute for Home Science and Higher Education for Women**  
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)  
Re-accredited with A++ Grade by NAAC. Recognised by UGC Under Section 12B  
Coimbatore - 641 043, Tamil Nadu, India

**Continuous Internal Assessment – I (August 2025)**  
**V Semester**

**Class: III UG**  
**Branch : Physics**

**Time: 2 Hours**  
**Max. Marks: 60**

**23BPHDE4- Medical Diagnostic Equipments**

**Course Outcomes:**

- CO1:** Learn the techniques of non- invasive diagnosis using the sound from the body  
**CO2:** Learn the techniques of non- invasive diagnosis using the electric potential and magnetic potential from the body surface  
**CO3:** Comprehend the techniques of non- invasive diagnosis using the blood flow in the body  
**CO4:** Acquire knowledge on the imagining techniques towards diagnosis  
**CO5:** Have an idea on scopes using visual inspection through optical devices for non-invasive detection of diseases

**Part A**

**6 x 1 =6**

**Choose the Correct Answer**

1. Which part of the stethoscope is placed on the patient's body? CO1K2  
a. Earpieces                      b.tubing                      c. diaphragm or bell      d. Chestpiece holder
2. Where are normal vesicular breath sounds typically heard? CO1K2  
a. Over the trachea                      b. Over the peripheral lung fields  
c. Between the scapulae                      d. Over the manubrium
3. What does the P wave in an ECG represent? CO2K2  
a. Depolarization of the ventricles      b. Repolarization of the atria  
c. Depolarization of the atria              d. Atrial to ventricular conduction time
4. What is considered a normal blood pressure reading? CO2K1  
a. 110/70 mm Hg      b.130/80 mm Hg      c. 120/80 mm Hg      d. 140/90 mm Hg
5. What is the typical frequency range for ECG signals? CO3K2  
a. 0.05to120Hz      b. 0.1 to 100 Hz      c. 5 to 2000 Hz      d. 0 to 20 Hz
6. What does an EMG measure? CO3K2  
a. The electrical activity of the brain      b. The electrical activity of the heart  
c. The electrical activity of the muscles      d. The electrical activity of the eyes

**Part B**

**3 x 6 = 18**

**Answer ALL questions**

**Each answer should not exceed 400 words or two pages**

- 7a. Explain the function of the Stethoscope and mention its application CO1K2  
(or)
- 7b. What is meant by otacoustic emission and explain working otacoustic emission. CO1K1

- 8.a. What are the main differences between EEG and MEG in terms of signal detection and measurement? CO2K1  
(or)  
8.b. write short notes on ElectroOculogram with diagram. CO2K1
- 9.a. What is the difference between invasive and non-invasive diagnostic techniques? CO3K1  
(or)  
9.b. Explain the principle of operation of an electromagnetic blood flow meter. CO3K1

**Part C**

**3 x 12 = 36**

**Answer ALL questions**

**Each answer should not exceed 800 words or four pages**

- 10.a. Describe the working mechanism of various type of microphone. Mention its characteristics and application. CO1K1  
(or)  
10.b. Explain the origin of different heart sound and describe the working function of heart. CO1K2
- 11.a. Explain the fundamental role of electrodes in both ECG and EMG measurements. CO2K1  
(or)  
11.b. Describe how an ECG machine works to record the heart's electrical activity. CO2K2
- 12.a. Explain the principles behind how a cuff sphygmomanometer measures blood pressure and the factors that can influence its accuracy. CO3K2  
(or)  
12.b. Explain the principle of operation of an electromagnetic blood flow meter. CO3K2

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