ECG

I. KNOWLEDGE

1. States purpose and indications of ECG.

Purpose:

- Detect **arrhythmias** (irregular heartbeats).
- Diagnose **heart attack/ischemia**.
- Identify **conduction abnormalities** (e.g., blocks).
- Monitor **heart health during treatment or surgery**.

Indications:

- Detect arrhythmias (irregular heartbeats).
- Diagnose myocardial ischemia/infarction (heart attack).
- Identify conduction abnormalities (e.g., bundle branch block).

- Monitor ventricular hypertrophy, pericarditis, long QT syndrome.
- Routine check for patients with chest pain, palpitations, syncope.

2. Identifies parts and functions of ECG machine.
   - **Electrodes:** Sensors placed on skin; detect heart's electrical signals.
   - **Leads:** Wires connecting electrodes to machine; provide different "views" of the heart.
   - **Amplifier:** Boosts weak electrical signals for clear recording.
   - **Display/Monitor:** Shows real-time ECG tracing.
   - **Recorder/Printer:** Produces paper or digital ECG strip.
   - **Control Panel:** Adjusts settings (speed, sensitivity).

- **Cables:** Connect electrodes to machine safely.

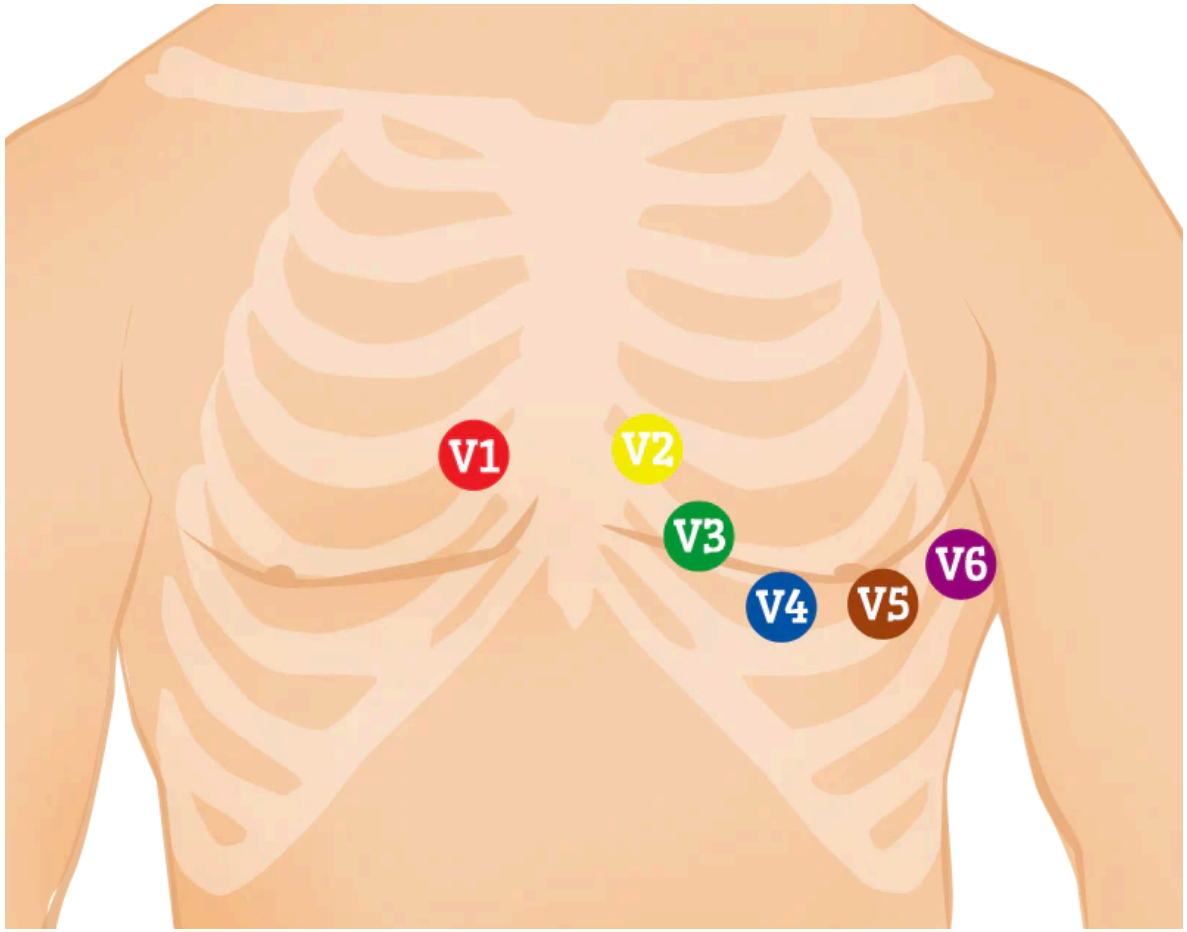
3. Explains correct lead placement and rationale.

12-lead ECG requires 10 electrodes:

- **Limb Leads (4):**
  - **RA (Right Arm)** – wrist/upper arm
  - **LA (Left Arm)** – wrist/upper arm
  - **RL (Right Leg)** – ankle/thigh (ground)
  - **LL (Left Leg)** – ankle/thigh

- **Chest Leads (6):**
  - **V1:** 4th intercostal space, right sternal border → right ventricle view

- **V2:** 4th intercostal space, left sternal border → septum view
- **V3:** midway between V2 & V4 → anterior wall
- **V4:** 5th intercostal space, midclavicular line → anterior wall
- **V5:** anterior axillary line, same level as V4 → lateral wall
- **V6:** midaxillary line, same level as V4 → lateral wall



4. Identifies safety precautions and infection control.
   - **Hand Hygiene:** Wash hands before & after patient contact.
   - **Gloves:** Always wear gloves during electrode placement.
   - **Equipment Cleaning:** Disinfect ECG machine, cables, and electrodes after each use.

- **Patient Safety:**
  - Ensure electrodes are properly attached (avoid loose contact).
  - Avoid placing electrodes over wounds or infected skin.
  - Check cables for damage to prevent electrical hazards.
- **Consent:** Obtain patient consent before procedure

II.SKILL

1. Introduces self and role to patient. Builds trust and rapport. "Good morning, I'm [Name], a student nurse, and I'll be performing your ECG today."
2. Performs proper hand hygiene. Prevents infection transmission.
3. Identifies patient correctly. Ensures safety and accuracy. "May I confirm your full name and birthday please?"

4. Explains procedure clearly. Reduces anxiety, promotes cooperation. "This test records your heart's electrical activity. It's painless and will only take a few minutes."
5. Provide privacy and ensure comfort. Maintains dignity and relaxation.
6. Prepares ECG machine and supplies. Ensures readiness and efficiency.
7. Checks paper, leads, and electrodes. Prevents technical errors.
8. Ensures electrical and patient safety. Prevents hazards
9. Position patient correctly (supine). Standard position for accurate tracing. "Please lie flat on your back and relax your arms and legs."
10. Performs proper skin preparation. Improves electrode contact.

11. Correct limb lead placement. Ensures accurate recording.
12. Correct chest lead placement (V1-V6). Captures heart's electrical activity from different angles.
13. Obtains clear, artifact-free ECG tracing. Provides reliable results. "Please stay still and breathe normally while the recording is taken."
14. Remove ECG leads gently & properly. Prevents discomfort
15. Cleans patient's skin and provides comfort. Maintains hygiene and comfort.
16. Labels ECG strip accurately (name, date, time). Ensures correct patient record.
17. Documents procedure appropriately. Provides legal and clinical record.