

- ☐ **B.** don a protective mask.
- ☒ **C.** use universal precautions.
- ☐ **D.** implement reverse isolation.

48. Which of the following actions should be taken first when the ECG technician observes occasional wide and distorted QRS complexes, distorted ST segments, and PR and QT intervals that cannot be measured?

- ☐ **A.** Initiate CPR.
- ☒ **B.** Alert the physician or nurse.
- ☐ **C.** Administer oxygen.
- ☐ **D.** Continue to monitor the patient.

49. Which of the following resources must be available for a patient undergoing a stress test? (Select the three (3) correct answers.)

- ☒ **A.** defibrillator
- ☐ **B.** protective gown and mask
- ☒ **C.** crash cart
- ☒ **D.** oxygen
- ☐ **E.** special camera or scanner

50. Which of the following actions should the ECG technician take if a 3 second period of sinus arrest is observed on an asymptomatic patient?

- ☐ A. Call a code.
- ☐ B. Ask the patient to remain still.
- ☒ C. Inform the physician about the pause.
- ☐ D. Check the patient for a pulse.

51. Ventricular pacemaker cells are found at the

- ☒ A. Purkinje fibers.
- ☐ B. left bundle branch.
- ☐ C. SA node.
- ☐ D. right bundle branch.

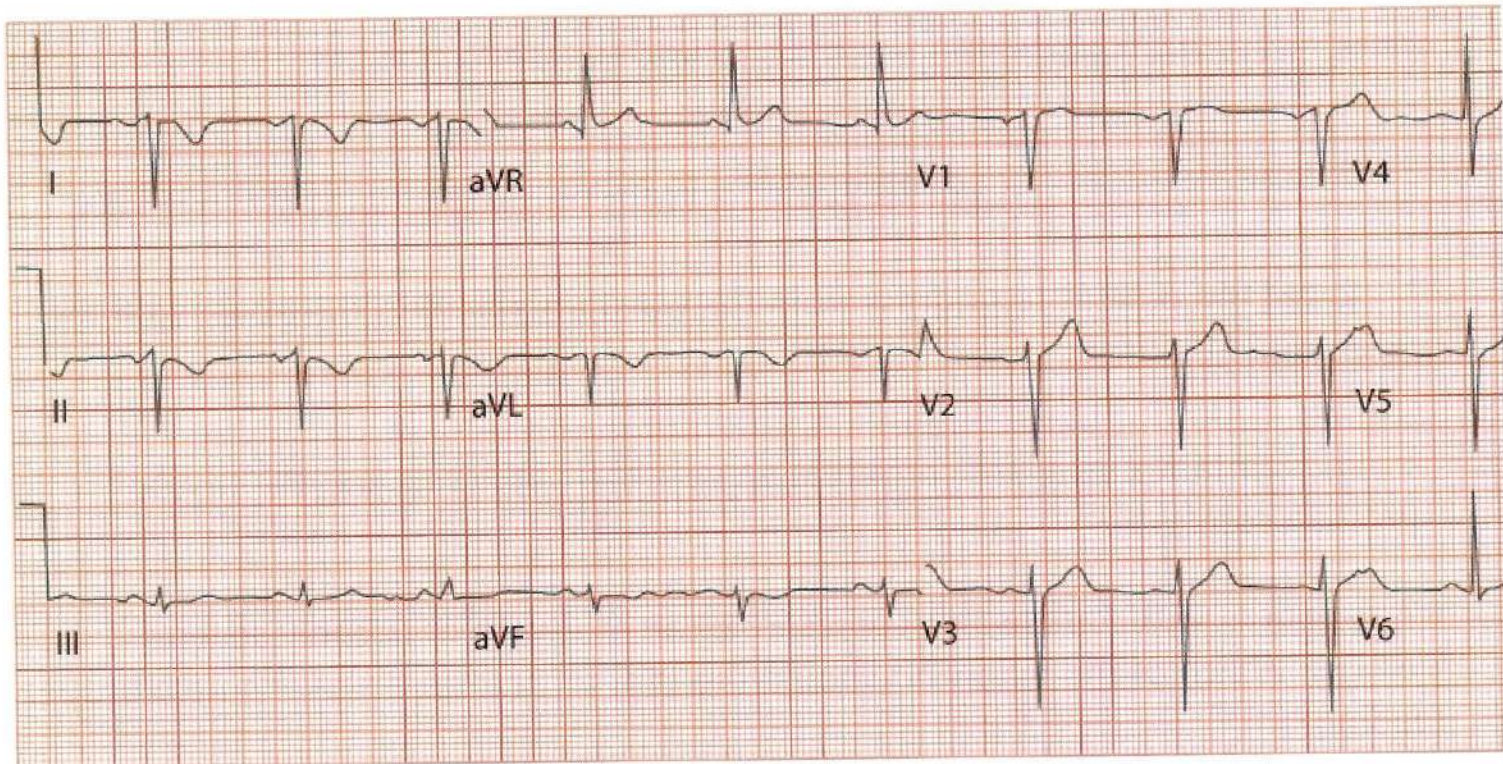
52. Which of the following should the ECG technician tell a patient who is preparing to wear a Holter monitor?

- ☐ A. Depress the event marker every hour.
- ☐ B. Remove the monitor from its case before bed.
- ☐ C. Stop recording after 12 hours.
- ☒ D. Avoid close contact with other electrical devices.

53. The ECG technician should enter the medications that the patient is taking into the

- ☐ A. discharge summary report.

- ☐ B. nurse's notes.
- ☐ C. system review.
- ☐ D. electrocardiogram.



54. Which of the following recording errors is shown in the strip above?

- ☐ A. upper limb lead reversal
- ☐ B. precordial lead reversal
- ☐ C. augmented lead reversal
- ☐ D. lower limb lead reversal

55. Improper grounding of the ECG during set-up is most likely to result in

- ☐ A. alternating current artifact.

- ☐ **B.** somatic tremor artifact.
- ☐ **C.** wandering baseline artifact.
- ☐ **D.** muscle artifact.

56. To ensure accuracy during the ECG procedure the technician should

- ☐ **A.** assist the patient onto the table in the Fowler's position.
- ☐ **B.** limit instructions and explanations to avoid increasing patient anxiety.
- ☐ **C.** tell the patient to undress from the waist up, donning the gown with the opening in the front.
- ☐ **D.** maintain a pleasant conversation with the patient during the test to provide comfort.

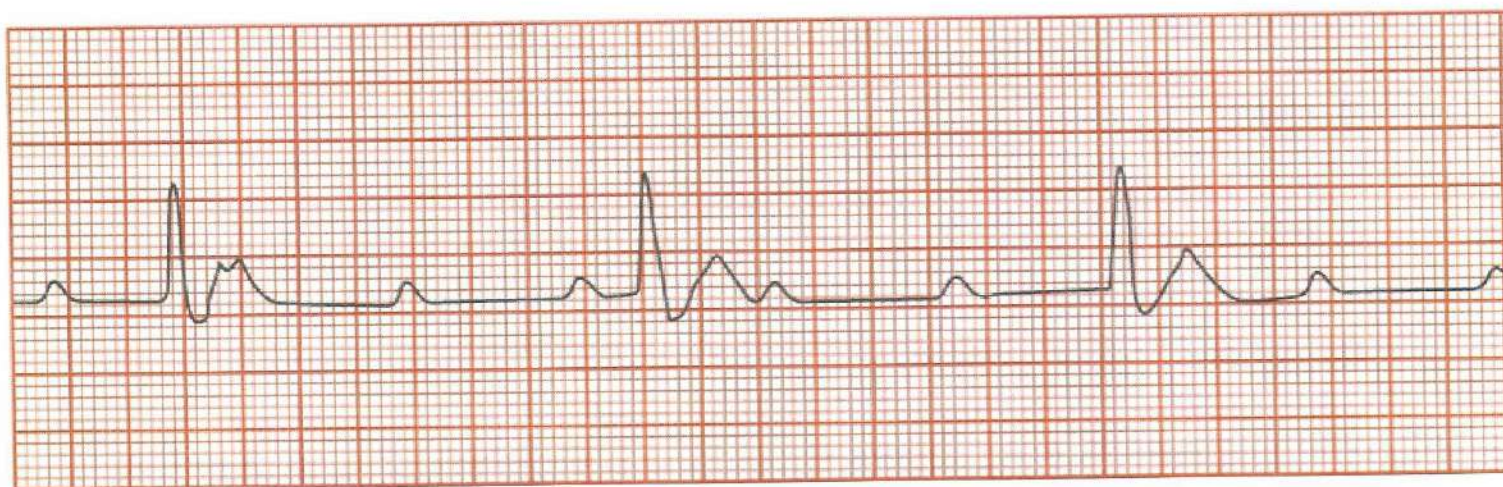
57. A patient with Parkinson's comes in for an ECG with noticeably severe tremors. Which of the following should the ECG technician do to ensure a proper reading?

- ☐ **A.** Have the patient slide their hands under their buttocks.
- ☐ **B.** Move the patient into the semi-fowlers position to ease breathing.
- ☐ **C.** Have the patient grasp the side of the table.
- ☐ **D.** Ask the patient to remain calm.

58. To determine the quality of atrial activity on an ECG strip, the ECG technician should examine which of the following portions of the cardiac cycle?

- ☐ **A.** ST segment

- ☐ B. T wave
- ☐ C. QT interval
- ☒ D. PR interval



59. Which of the following actions should the ECG technician take first with the strip shown above?

- ☐ A. Monitor for low cardiac output.
- ☐ B. Initiate cardiopulmonary resuscitation.
- ☐ C. Administer oxygen.
- ☒ D. Immediately notify the physician.

60. If a flat line appears in one of the leads of an ECG tracing the ECG technician should ensure that

- ☐ A. the patient is lying still during the test.
- ☒ B. all wires are connected to an electrode.

- ☐ C. the left and right upper limb wires are not reversed.
- ☐ D. all electronic devices in the area are turned off.

61. Which of the following is the proper blood pressure cuff for a 9-year-old child weighing 145 pounds?

- ☐ A. large adult
- ☐ B. child
- ☐ C. thigh
- ☐ D. standard adult

62. Which of the following actions should the ECG technician take to ensure proper monitoring of a patient during a stress test? (Select the three (3) correct answers.)

- ☐ A. Instruct the patient to report any symptoms.
- ☐ B. Instruct the patient to start at a rapid pace.
- ☐ C. Adjust the temperature of the room to the patient's preference.
- ☐ D. Observe facial expressions, skin color and perspiration.
- ☐ E. Measure blood pressure and heart rate frequently.

63. During stress testing on a 50-year-old patient, which of the following is a reason for terminating the test?

- ☐ A. A heart rate of 130.

- ☐ B. The patient is starting to exhibit diaphoresis.
- ☒ C. A decrease in systolic blood pressure by 23 mmHg.
- ☐ D. A respiratory rate of 25 per minute.

64. An ECG technician is preparing to perform an ECG on a patient with a total left arm amputation. How should the technician place the arm electrodes?

- ☐ A. Omit the left electrode and put the right on the upper outer arm.
- ☒ B. Put both the right and left on the torso, below the clavicle.
- ☐ C. Put the right on the upper outer arm and the left on the torso below the clavicle.
- ☐ D. Place both the right and left on the upper outer shoulder area.

65. On an ECG strip for a patient with a pacemaker, if there are pacing spikes present and there is no atrial or ventricular depolarization, the ECG technician should recognize which of the following pacemaker complications?

- ☒ A. loss of capture
- ☐ B. misfiring
- ☐ C. oversensing
- ☐ D. malsensing

66. Proper electrode placement for continuous ECG monitoring is identified by the use of

- ☐ A. 10 electrodes placed on the patient's torso.

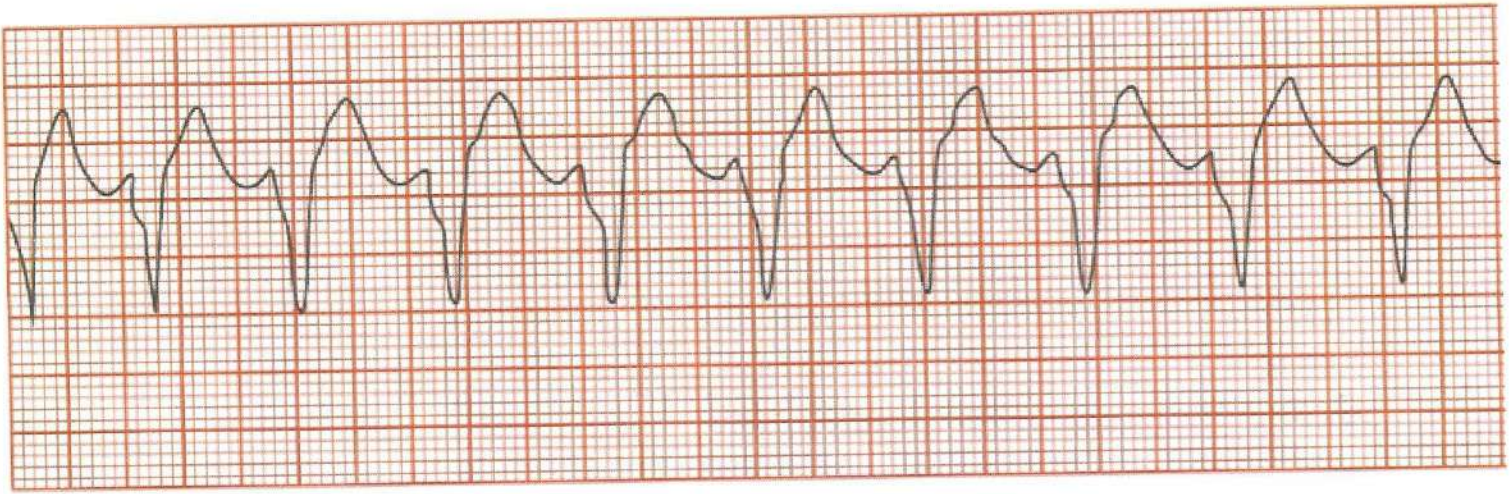
- ☐ B. 3 leads placed on the patient's torso.
- ☐ C. 5 electrodes placed on the patient's extremities and torso.
- ☐ D. 12 electrodes placed on the patient's extremities and torso.

67. How should a 38-year-old late term pregnant woman be positioned to reduce pressure on the inferior vena cava during an ECG?

- ☐ A. supine
- ☐ B. lithotomy
- ☐ C. dorsal recumbent
- ☐ D. semi-Fowler's

68. While obtaining vitals on an infant, how is the heart rate measured?

- ☐ A. Palpate the radial pulse for 60 seconds.
- ☐ B. Auscultate the apical pulse for 60 seconds.
- ☐ C. Auscultate the brachial pulse for 60 seconds.
- ☐ D. Palpate the femoral pulse for 60 seconds.



69. Which of the following is indicated in the strip shown above?

- ☐ A. atrial rate undetermined, unidentifiable RR interval
- ☐ B. atrial rate 100, ventricular rate between 100 and 200 bpm
- ☐ C. atrial rate 100, unidentifiable PP interval
- ☒ D. atrial rate undetermined, ventricular rate between 100 and 200 bpm

70. Prior to transmitting any ECG report to a patient's EMR/EHR or chart, which of the following should the ECG technician do? (Select the three (3) correct answers.)

- ☐ A. Give the patient the results.
- ☒ B. Eliminate artifacts.
- ☒ C. Ensure correct ICD codes were used.
- ☐ D. Give a copy of the strip to the patient.
- ☒ E. Ensure all patient information is correct.

71. Reminding patients to refrain from talking and moving, and keeping them warm during the ECG procedure are important to help eliminate

- ☐ **A.** a somatic tremor artifact.
- ☐ **B.** a 60-cycle interference.
- ☐ **C.** a wandering baseline artifact.
- ☐ **D.** an alternating current interference.

72. Which of the following indicates a normal sinus rhythm?

- ☐ **A.** PR interval of 0.14 second, QRS complex of 0.12 second, QT interval of 0.48 second and HR of 72
- ☐ **B.** PR interval of 0.22 second, QRS complex of 0.12 second, QT interval of 0.48 second and HR of 72
- ☐ **C.** PR interval of 0.22 second, QRS complex of 0.10 second, QT interval of 0.40 second and HR of 78
- ☐ **D.** PR interval of 0.14 second, QRS complex of 0.10 second, QT interval of 0.40 second and HR of 78

73. Which of the following pieces of equipment should the ECG technician anticipate using when taking a patient's blood pressure?

- ☐ **A.** otoscope
- ☐ **B.** pulse oximeter
- ☐ **C.** speculum
- ☐ **D.** sphygmomanometer

74. To prevent a wandering baseline artifact, the ECG technician should ensure the patient is

- ☐ **A.** positioned with his hands under the buttocks.
- ☒ **B.** cleansed with alcohol prep pads.
- ☐ **C.** moved away from the wall if in a hospital bed.
- ☐ **D.** not wearing any metal jewelry.

75. An ECG technician is performing an ECG on a patient who is talking, alert and oriented, but the printout shows ventricular fibrillation. Which of the following actions should the ECG technician take in response to this reading?

- ☐ **A.** Begin CPR and lifesaving measures.
- ☐ **B.** Administer oxygen.
- ☐ **C.** Call a code.
- ☒ **D.** Check connection of electrodes.

76. The patient asks the ECG technician why vital signs are taken at every office visit. Which of the following is the best response?

- ☐ **A.** "It is for diagnostic purposes."
- ☒ **B.** "To obtain a baseline measurement of your overall health status."
- ☐ **C.** "The physician requires it."
- ☐ **D.** "To comply with health insurance reimbursement policies."

77. Which of the following variations in ECG results is likely for patients with pacemakers?

- ☐ A. presence of a pacing spike
- ☐ B. decreased PR interval
- ☐ C. inverted P-wave
- ☐ D. elevated ST segment

78. An idioventricular rhythm has an absence of

- ☐ A. P waves.
- ☐ B. T waves.
- ☐ C. S waves.
- ☐ D. ST segment.

79. Which of the following occurs when a singular irritable impulse fires so rapidly it bombards the AV node, causing V shaped or upside down V shaped waves?

- ☐ A. ventricular flutter
- ☐ B. ventricular tachycardia
- ☐ C. atrial tachycardia
- ☐ D. atrial flutter

80. An ECG technician obtains an ECG recording with the following measures: PR interval of 0.24 seconds, QRS complex of 0.08 seconds, T waves upright at 5 mm

and a calculated heart rate of 68 beats per minute. Which of the following should the technician identify this rhythm as?

- ☐ A. normal sinus
- ☒ B. 1st degree block
- ☐ C. bundle branch block
- ☐ D. accelerated junctional

81. ST segment depression with T wave inversion indicates which of the following arrhythmias?

- ☐ A. AV block
- ☐ B. hemiblock
- ☐ C. first degree heart block
- ☒ D. bundle branch block

82. Which of the following is the most common lead used to evaluate components of the ECG strip?

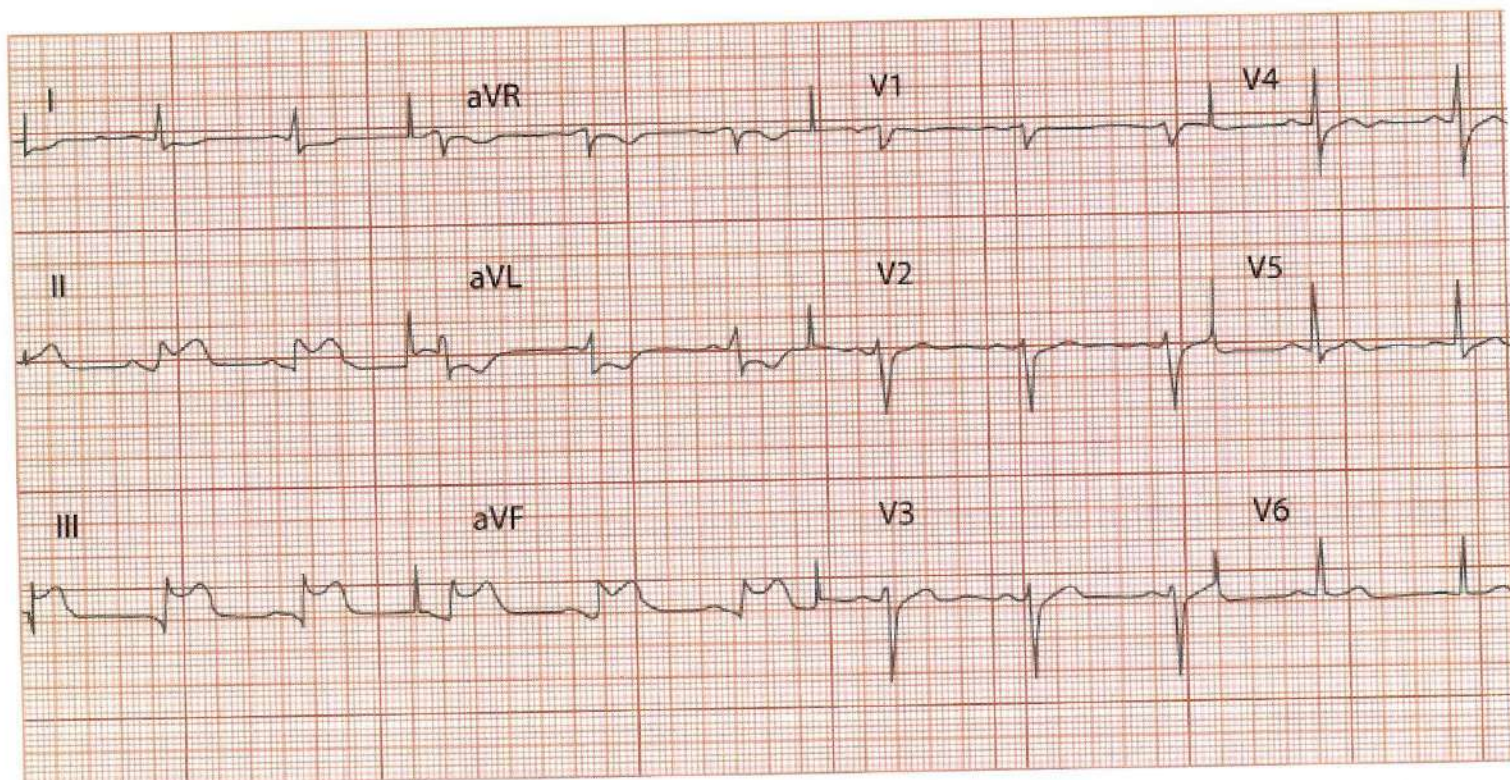
- ☐ A. Lead I
- ☒ B. Lead II
- ☐ C. Lead V4
- ☐ D. Lead AVR

83. In a patient with a heart that deviates to the right of the sternum, the ECG technician should place the precordial leads in which of the following positions?

- ☐ **A. left to right**
- ☐ **B. anterior to the negative electrode**
- ☐ **C. posterior to the positive electrode**
- ☐ **D. right to left**

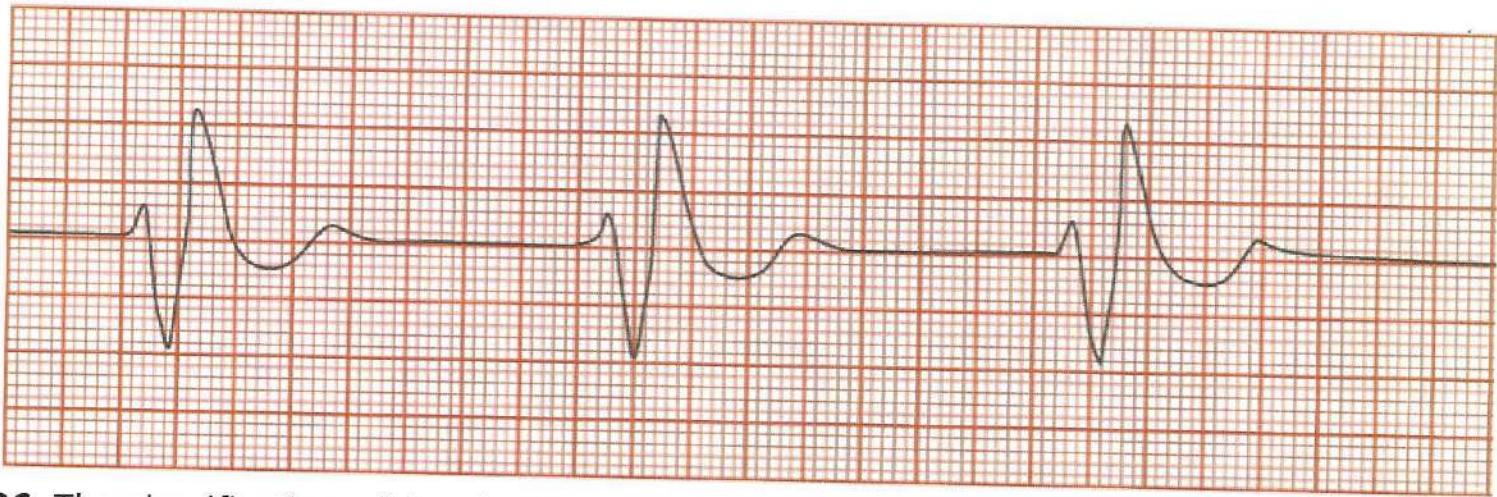
84. Widening of QRS complexes on an ECG most likely indicates which of the following abnormalities?

- ☐ **A. rapid ventricular repolarization**
- ☐ **B. bundle branch block**
- ☐ **C. 1st degree heart block**
- ☐ **D. atrial flutter**



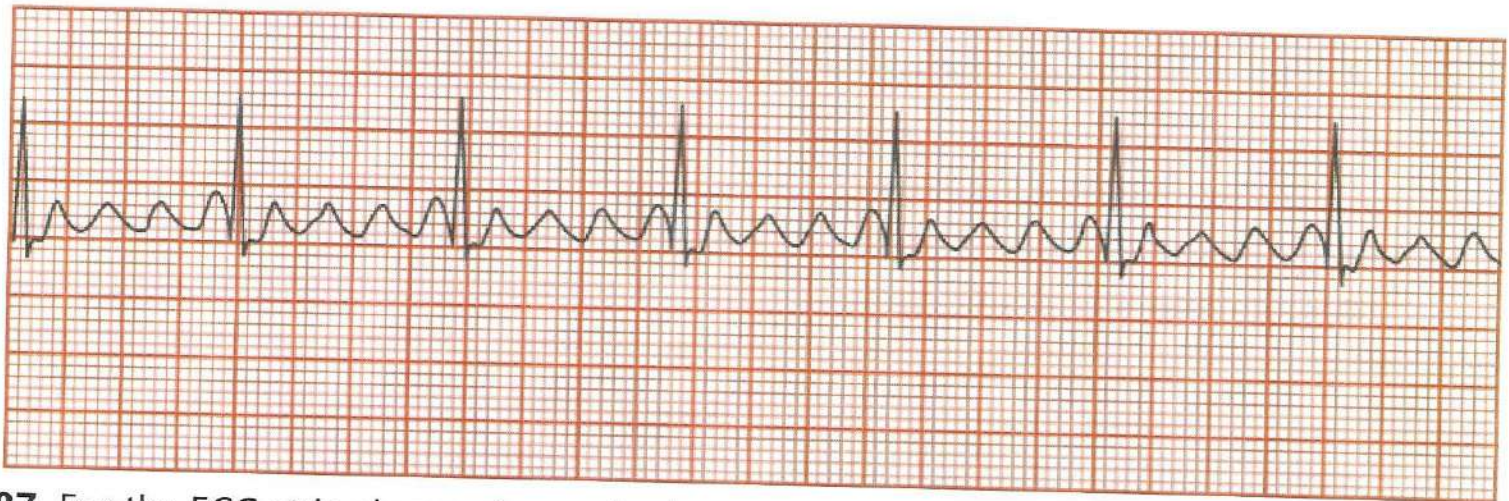
85. While performing a stress test on a patient, the patient complains of chest pain and has the ECG shown above. Which of the following should the ECG technician do next?

- ☐ A. Call a code.
- ☒ B. Notify the physician/nurse and stop the treadmill.
- ☐ C. Tell the patient to take deep breaths.
- ☐ D. Review the peak for possible changes.



86. The classification of the rhythm strip shown above is

- ☐ A. bundle block.
- ☐ B. atrial.
- ☐ C. junctional.
- ☒ D. ventricular.



87. For the ECG strip shown above, the heart rate would be calculated as 90 bpm if which of the following methods were used?

- ☒ A. 6-second method
- ☐ B. Small box method

- ☐ C. 300 method
- ☐ D. Large box method

88. While performing an ECG an emergency arises with the patient. Which of the following should the ECG technician assess first? (Select the two (2) correct answers.)

- ☐ A. skin
- ☐ B. eyes
- ☐ C. respiration
- ☐ D. pulse
- ☐ E. temperature

89. A patient with a blood pressure of 158/96 mm Hg is considered

- ☐ A. bradycardic.
- ☐ B. tachycardic.
- ☐ C. hypertensive.
- ☐ D. hypotensive.

90. Which of the following actions should the ECG technician take first when performing an ECG?

- ☐ A. Verify insurance information.
- ☐ B. Explain the procedure to the patient.

Ⓒ **C.** Obtain consent for the procedure.

Ⓒ **D.** Identify herself by name and title.

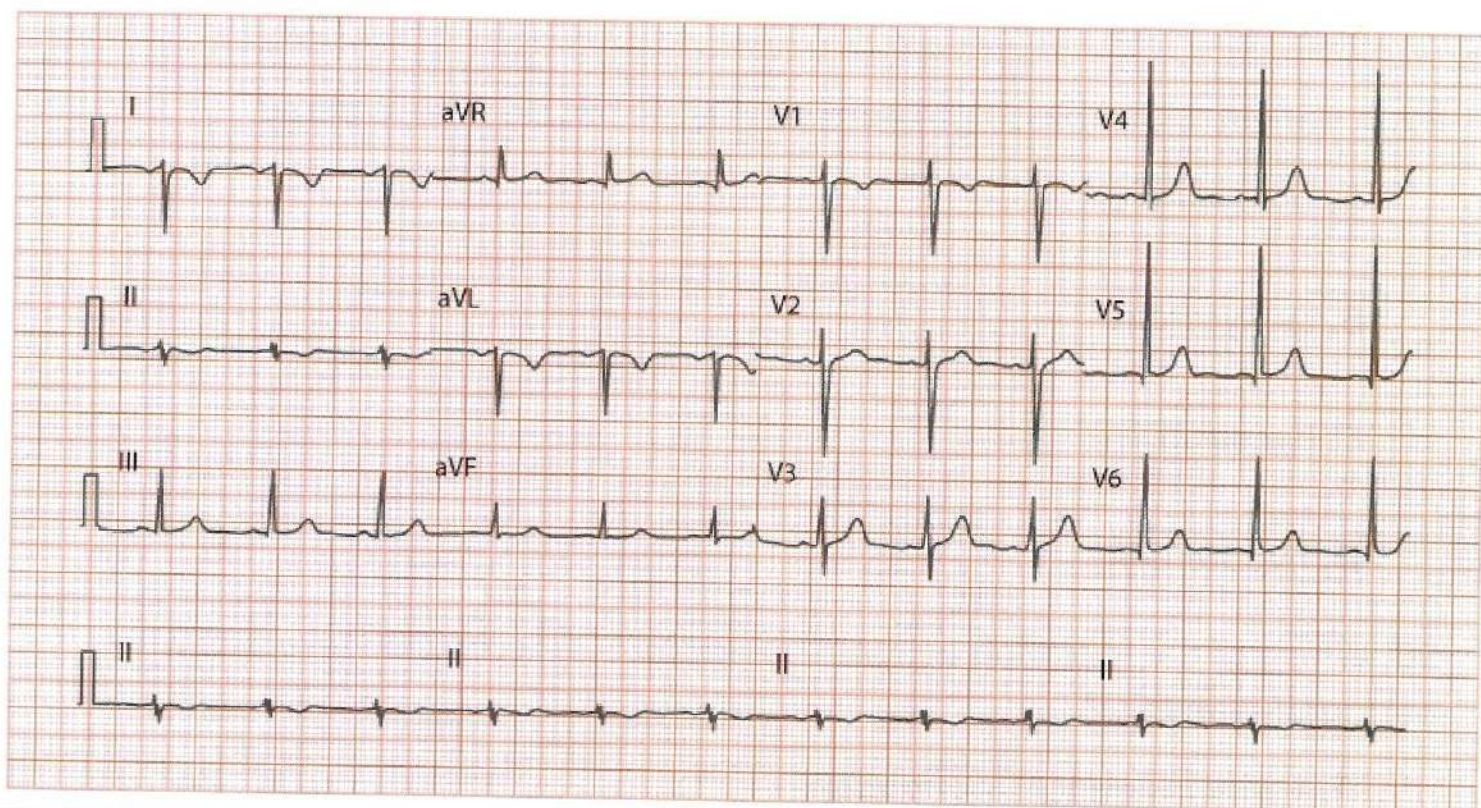
91. Which of the following is a typical characteristic of a Premature Atrial Contraction (PAC)?

Ⓒ **A.** two P waves for one QRS complex

Ⓒ **B.** QRS duration and configuration wide and bizarre with T wave in opposite direction

Ⓒ **C.** PR interval within normal limits

Ⓒ **D.** PR interval follows the underlying rhythm



92. Which of the following should the ECG technician do after obtaining the strip shown above?

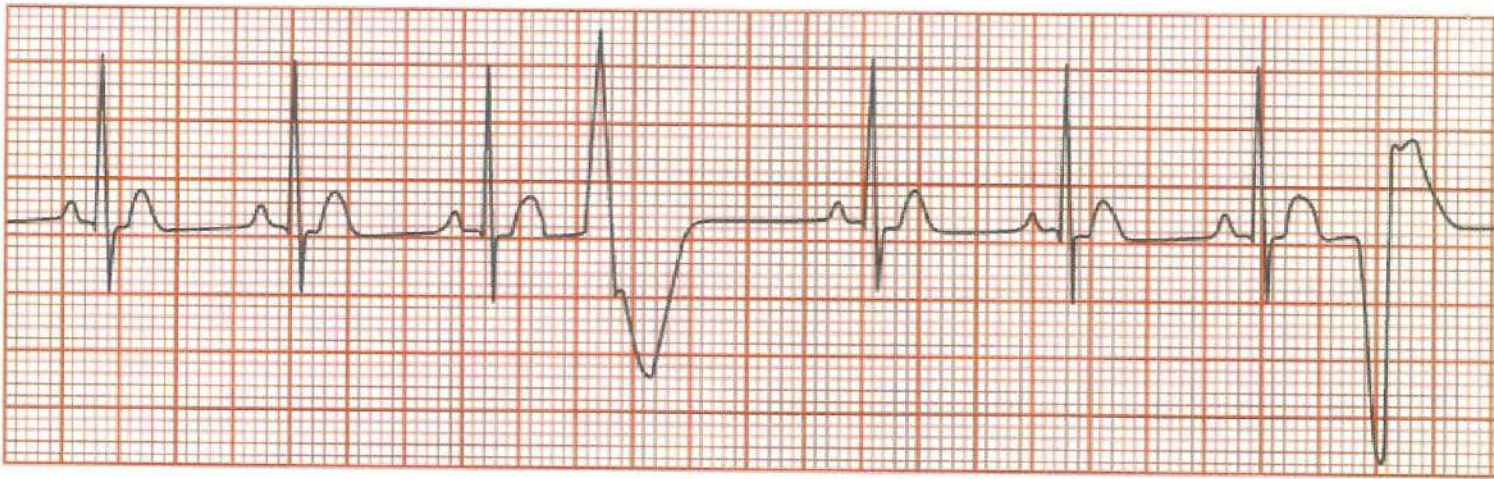
- ☐ A. Ask the patient if they have experienced any cardiac related symptoms.
- ☒ B. Ensure all electrodes and cables are properly placed.
- ☐ C. Ensure that the patient remains completely still during the test.
- ☐ D. Ask the patient if they have an implanted atrial pacemaker.

93. In prepping for placement of a 24-hour Holter monitor, how should the ECG technician instruct the patient?

- ☐ A. Withhold prescription medications during the 24-hour period.
- ☐ B. Refrain from exercising for the duration of the test.
- ☐ C. Avoid the intake of caffeinated beverages until the monitor is removed.
- ☒ D. Do not use a hair dryer while wearing the monitor.

94. When performing a stress test on a 42-year-old patient, the earliest the test can be concluded is when the patient reaches a heart rate of

- ☐ A. 262 bpm.
- ☐ B. 220 bpm.
- ☐ C. 188 bpm.
- ☒ D. 178 bpm.



95. Which of the following calculation methods should be used to determine heart rate in the strip shown above?

- ☐ A. the 300 method
- ☐ B. the R-R method
- ☐ C. the 1500 method
- ☒ D. the 6 second method

96. A three-month-old patient is fussy and moving his arms and legs. Which of the following should the ECG technician do in order to get proper electrode placement for an accurate ECG? (Select the two (2) correct answers.)

- ☐ A. Use a reward system.
- ☒ B. Sooth the child with a pacifier.
- ☐ C. Allow the child to get familiar with the equipment.
- ☐ D. Only place precordial leads.
- ☒ E. Allow the parent to hold the child.

97. Lead II records the tracing between which of the following limbs?