

NHA® CET - Quiz Questions with Answers

1. Safety, Compliance, and Coordinated Patient Care

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1.

Which of the following is **not** a protocol used for a cardiac stress test?

Modified Naughton protocol

Bruce protocol

Modified Bruce protocol

Naughton protocol

Correct answer: Modified Naughton protocol

The three main protocols (or instructions) used during the stress test are the Bruce protocol, the modified Bruce protocol, and the Naughton protocol.

2.

Where is V5 placed on a patient?

Between V4 and V6

Between V2 and V4

In the fourth intercostal space to the right of the sternum

In the fifth intercostal space at the midclavicular line

Correct answer: Between V4 and V6

V5 is placed between V4 and V6 on a patient.

V1 is located in the fourth intercostal space to the right of the sternum.

V3 is placed between V2 and V4.

V4 is placed in the fifth intercostal space on the midclavicular line.

3.

What is considered elevated blood pressure?

120-129 systolic and below 80 diastolic

130-139 systolic and 80-89 diastolic

Below 120 systolic and below 80 diastolic

140 or higher systolic and above 90 diastolic

Correct answer: 120-129 systolic and below 80 diastolic

Elevated blood pressure is considered to be 120-129 systolic and below 80 diastolic.

Normal blood pressure is below 120 systolic and below 80 diastolic. Stage 1 is defined by a blood pressure of 130-139 systolic and 80-89 diastolic. Stage 2 is defined by pressure greater than 140 systolic and greater than 90 diastolic.

4.

In reference to HIPAA's privacy rules, what does use mean?

How information is used in a health care facility

How information is captured in a health care facility

How a patient uses their information while in a health care facility

How a patient's employer uses the information in a health care facility

Correct answer: How information is used in a health care facility

Under HIPAA privacy rules, use is based on information's role in a health care facility.

5.

What important component of the cardiovascular system is being assessed during a cardiac stress test?

The coronary arteries

The aorta

The pulmonary arteries

The superior vena cava

Correct answer: The coronary arteries

The goal of a cardiac stress test is to diagnose the presence of coronary artery disease. The patient's symptoms and EKG changes during the test can determine the patency of the coronary arteries.

6.

During a patient assessment, their pulse is weak, thready, and rapid. What does this finding indicate?

Cardiogenic shock

High blood pressure

Hyperkalemia

Normal finding

Correct answer: Cardiogenic shock

A weak, thready pulse with a rapid heart rate indicates low blood pressure, which is often seen in severely ill patients suffering from cardiogenic shock.

Pulse rate does not indicate a patient's potassium level.

7.

During a patient assessment, their pulse is full, bounding, and rapid. What does this finding indicate?

Heart failure

Sepsis

Normal finding

Shock

Correct answer: Heart failure

A full, bounding pulse that is racing indicates an abnormality of the heart (e.g., aortic insufficiency, abnormal rhythm, or heart failure), especially in patients who feel symptomatic.

Sepsis and shock cause severely low blood pressure and will present with a weak, thready pulse.

8.

An EKG technician observes a patient's heart rate consistently at 45 beats per minute, but the patient has no symptoms and reports feeling healthy.

Which of the following best explains this finding?

The patient's heart rate may be normal if they are an athlete

The patient likely has sinus tachycardia, and further monitoring is needed

The patient is experiencing a dangerous arrhythmia that requires immediate intervention

The patient needs a pacemaker

Correct answer: The patient's heart rate may be normal if they are an athlete

In well-trained athletes, a resting heart rate as low as 35–40 beats per minute is not uncommon and can be considered normal due to enhanced vagal tone, which increases parasympathetic activity and lowers the heart rate. This condition is known as athletic bradycardia and does not typically indicate any pathology.

In the absence of symptoms or other abnormal findings, a heart rate of 45 beats per minute may be a benign finding.

9.

A hypothermic adult is brought to the emergency department after being found unconscious in freezing temperatures. An electrocardiogram (EKG) reveals asystole—a flat line in all leads.

Considering the patient's condition, which of the following is the most appropriate course of action?

Initiate aggressive resuscitation efforts because hypothermic patients have a better chance of survival from asystole

Declare death immediately, as asystole indicates a non-survivable condition

Wait for the patient to warm up naturally before beginning any resuscitation efforts

Focus on notifying the family, as survival rates are zero in asystolic patients outside the hospital

Correct answer: Initiate aggressive resuscitation efforts because hypothermic patients have a better chance of survival from asystole

In cases of asystole, the general survival rate is very low. However, hypothermic patients have a better chance of recovery because the low body temperature can slow metabolism and protect vital organs, including the brain. The principle "they are not dead until they are warm and dead" applies here. Therefore, initiating aggressive resuscitation efforts, including rewarming techniques and advanced cardiac life support, is appropriate.

Declaring death without attempting resuscitation ignores the potential for survival.

Passive rewarming delays potentially lifesaving measures.

Survival rates are low, but not zero.

10.

There are several legal exceptions when healthcare professionals can breach confidentiality without permission. Which of the following is **not** one of these exceptions?

If the patient is a minor

If the patient has a stab wound

If there is suspected child abuse

If there is a reportable disease

Correct answer: If the patient is a minor

There are several legal exceptions when healthcare professionals can breach confidentiality without permission. These include stab wounds, gunshot wounds, injuries sustained in a crime, child/elderly abuse, and infectious, communicable, and reportable diseases.

11.

Which of the following is **not** measured by pulse rate?

Blood pressure

Heart rate

Heart rhythm

Pulse strength

Correct answer: Blood pressure

Measuring the pulse rate assesses three aspects of the heart: heart rate, heart rhythm, and pulse strength.

Blood pressure is measured by a blood pressure cuff.

12.

There are five sections, or titles, in HIPAA. Which title discusses the HIPAA Privacy Rule?

Title II

Title I

Title III

Title IV

Correct answer: Title II

The Privacy Rule can be found under title II of the HIPAA document. Titles I, III, and IV discuss healthcare accessibility, the integration of electronic documentation (III), and incorporating new healthcare reforms into insurance plans (IV).

13.

What causes hypertrophy?

Pressure overload

Volume saturation

Increase in electrical impulses

Increase in the size of a vessel

Correct answer: Pressure overload

Pressure overload causes hypertrophy. Hypertrophy refers to an increase in muscle mass. The wall of a hypertrophic ventricle is thick and powerful. Most hypertrophy is caused by pressure overload, in which the heart is forced to pump blood against an increased resistance.

14.

What does hypertrophy mean?

An increase in muscle mass

An increase in contractility

An increase in polarization

A decrease in repolarization

Correct answer: An increase in muscle mass

Hypertrophy refers to an increase in muscle mass. This physiological process occurs when muscle fibers enlarge due to increased demand or stress, such as from resistance training or other forms of exercise. The increase in muscle size results from the growth of individual muscle cells, enhancing the muscle's overall strength and functionality.

Contractility refers to the heart muscle's ability to contract.

Polarization is the process of creating an electrical charge difference across a cell membrane.

Repolarization is the return of the cell membrane's electrical state to its resting potential after depolarization.

15.

Stress testing is what kind of method for assessing the presence and severity of coronary artery disease?

Noninvasive

Invasive

Idiopathic

Dangerous

Correct answer: Noninvasive method

Stress testing is a noninvasive method for assessing the presence or severity of coronary artery disease. Noninvasive does not require instruments entering the body, whereas invasive would. Idiopathic is a general term meaning an unknown cause.

16.

Violating the HIPAA Privacy Rule can lead to many consequences, including which of the following?

Imprisonment

Fines ranging from 100 to 1,000 dollars

Suspension without pay

A verbal warning from a supervisor

Correct answer: Imprisonment

Serious consequences of violating the HIPAA Privacy rule include immediate termination (not suspension) from a place of employment, fines ranging from 100 to over one million dollars, a civil suit filed by the family, and even imprisonment.

17.

The Health Insurance Portability and Accountability Act was passed into law in what year?

1996

2001

1985

1976

Correct answer: 1996

The Health Insurance Privacy and Portability Act was passed in 1996. The goals of creating this legislation were to help protect the personal information of citizens, reduce healthcare fraud, and provide easier access to health care.

18.

What does the term enlargement mean?

The dilation of a heart chamber

The dilatation of the arteries

The dilatation of the heart valves

The dilatation of the blood cells

Correct answer: The dilation of a heart chamber

Enlargement is typically caused by volume overload; the chamber dilates to accommodate an increased amount of blood. An enlarged ventricle can hold more blood than a normal ventricle.

19.

Patient health information is considered which of the following?

IIHI

GINA

ARRA

HITEACH

Correct answer: IIHI

Patient health information (PHI) is a subset of individually identifiable health information (IIHI).

GINA stands for Genetic Information Nondiscrimination Act. ARRA stands for the American Recovery and Reinvestment Act (2009), and HITECH stands for Health Information Technology for Economic and Clinical Health Act.

20.

How is respiratory rate accurately measured?

Observe the patient's normal breathing pattern for one full minute

Observe the patient's breathing pattern for 10 seconds, then multiply by six

Ask the patient to take several deep breaths for one minute

Monitor the respiratory value on the vital signs monitor

Correct answer: Observe the patient's normal breathing pattern for one full minute

Because each person's normal breathing pattern is not regular, the most accurate assessment is to watch a patient breathe for one full minute. For accuracy, it is best to observe the rate without telling the patient to breathe differently.

A respiratory rate can be measured on the vital signs monitor if the patient is receiving oxygen; however, this is not the best indication of a correct rate.

21.

Which of the following is **not** a major goal of the HIPAA Privacy Rule?

To punish hospitals for violating the rule

To protect the public's health and well-being

To ensure the privacy of patients while allowing the flow of health information to continue smoothly

To permit the important exchange of patient information while protecting confidentiality

Correct answer: To punish hospitals for violating the rule

The HIPAA Privacy Rule's goal is to protect the privacy of a patient while maintaining the flow of information, to ensure that important information is transferred between healthcare providers while maintaining confidentiality, and to promote the general health and well-being of the public.

While there are serious consequences for violating the rule, the goal of the HIPAA Privacy Rule is not simply to punish.

22.

The HIPAA Privacy rule includes business associates as entities that are required to comply with the Privacy Rule. Which of the following is **not** an example of a business associate?

A third-party construction team hired to renovate a clinic

A third-party business that assists in processing claims

An accounting firm that handles a healthcare provider's billing

A third-party consultant that performs utilization reviews

Correct answer: A third-party construction team hired to renovate a clinic

A business associate is defined as a contractor hired by a covered entity to perform services that involve the transfer of protected health information. The contractor must have direct access to protected health information to be subject to the HIPAA Privacy Rule.

23.

What is the definition of a "vital sign"?

Measurement of the body's functions

Predictor of obesity obtained by measuring the weight and height of an individual

Evaluation of a patient's nervous system

Assessment of a patient's cardiac function by monitoring heart rate during strenuous exercise

Correct answer: Measurement of the body's functions

Vital signs are the measurement of the body's functions.

Body mass index (BMI) is a predictor of obesity obtained by measuring the weight and height of an individual. A neurological exam is a series of tests that evaluates a person's nervous system. A cardiac stress test monitors a patient's cardiac function by assessing their heart rate during strenuous exercise.

24.

A physician orders a pharmacologic stress test for a patient unable to perform a treadmill exercise test. Which of the following medications is most commonly used to simulate the effects of exercise during this type of test?

Adenosine

Digoxin

Atorvastatin

Acrivastine

Correct answer: Adenosine

Adenosine is a commonly used pharmacologic agent in stress testing for patients who cannot physically perform an exercise test. It works by dilating coronary arteries and increasing blood flow, mimicking the effects of exercise on the heart.

Digoxin is used for heart failure and atrial fibrillation, but it is not used in stress testing.

Acrivastine is an allergy medicine and is unrelated to stress testing.

Atorvastatin is a cholesterol-lowering medication and is not used in simulating exercise during a stress test.

25.

What does the QRS complex represent?

Ventricular depolarization

Ventricular repolarization

Atrial depolarization

Atrial repolarization

Correct answer: Ventricular depolarization

The QRS complex represents ventricular depolarization.

The T wave represents ventricular repolarization.

he P wave represents atrial depolarization.

Atrial repolarization is lost in the QRS complex.

26.

Stress testing is indicated for patients who have or are suspected to have which condition?

Atherosclerosis

Stroke

Asthma

Aortic stenosis

Correct answer: Atherosclerosis

Stress testing is used for patients with confirmed or suspected atherosclerosis.

Stress testing is not indicated for people with stroke or asthma since they are not cardiac conditions.

Stress testing is contraindicated (should not be performed) in individuals with severe aortic stenosis.

27.

What is the definition of blood pressure?

The force of the blood pushing against the arterial walls

The force of the blood pushing against the venous walls

The heart rate

The amount of blood pumped out of the heart per minute

Correct answer: The force of the blood pushing against the arterial walls

Blood pressure measures the force of the blood pushing against the arterial walls. It does not measure the pressure of the venous walls.

The measurement of the amount of blood pumped out of the heart per minute is called cardiac output.

28.

What does the term axis mean?

The direction of the mean electrical vector

The direction of the frontal plane

The direction of retrograde conduction

An increase in electrical activity

Correct answer: The direction of the mean electrical vector

An axis refers to the direction of the mean electrical vector.

The frontal plane is a way to look at the body from the front. It doesn't describe the heart's electrical activity.

Retrograde conduction is about electrical signals moving backward in the heart. It's a specific pattern, not the overall direction of electrical activity.

An increase in electrical activity refers to the strength of electrical signals, not the direction they're going.

29.

A patient experiences palpitations that occur infrequently and unpredictably, sometimes weeks apart.

Which type of cardiac monitoring device would be most appropriate to capture these rare arrhythmic events?

Event monitor

Standard 12-lead EKG

Traditional Holter monitor

Patch-type ambulatory monitor worn for 2 weeks

Correct answer: Event monitor

For individuals who have occasional arrhythmias that short-term monitoring equipment can miss, an event monitor is the best option.

In contrast to Holter monitors or two-week ambulatory patches, event monitors are worn continuously and are triggered by the patient at the onset of symptoms. This makes it more likely that the arrhythmic occurrence will be captured on camera when it occurs.

A 12-lead EKG is unlikely to identify intermittent symptoms since it only captures a momentary snapshot of cardiac activity.

30.

A patient is being fitted with a Holter monitor to record heart activity for 24 hours. Which of the following instructions should you give to ensure they understand proper use of the monitor?

Keep a detailed journal of your activities and symptoms you feel throughout the day

Only remove the device at night before you go to sleep

Turn on the monitor when you wake up and turn it off at night to conserve the battery

Disconnect the monitor if you feel any discomfort and reconnect it after 30 minutes

Correct answer: Keep a detailed journal of your activities and symptoms you feel throughout the day

Patients wearing a Holter monitor should be instructed to keep a detailed log of their daily activities and any symptoms they experience, as this helps correlate the data collected by the monitor with their physical or emotional states.

The monitor must be worn continuously, even during sleep, to capture a complete 24-hour recording.

The monitor should be worn at all times, not just during physical activity.

The monitor should not be disconnected during the monitoring period unless instructed by a healthcare provider.

31.

A 72-year-old patient undergoing an EKG suddenly complains of dizziness and feeling "faint." The technician measures the patient's vital signs and notes the following:

- Blood pressure: 82/45 mmHg
- Heart rate: 38 beats per minute
- Respiratory rate: 20 breaths per minute
- Oxygen saturation: 97% on room air

Based on these findings, which of the following best describes the patient's condition?

The blood pressure and heart rate are below normal ranges and could indicate a medical emergency

The heart rate and respiratory rate are within normal limits for an elderly patient

The vital signs are stable, and the symptoms are likely unrelated to the cardiovascular system

The blood pressure is normal, but the heart rate is elevated, indicating tachycardia

Correct answer: The blood pressure and heart rate are below normal ranges and could indicate a medical emergency

The following are considered normal parameters:

- **SPO2:** 92-100%
- **Heart rate:** 70-100 beats per minute
- **Respirations:** 16-20 breaths per minute
- **Blood pressure:** under 120 mm Hg systolic or under 80 mm Hg diastolic
- **Temperature:** 97.8-99 degrees Fahrenheit

In this case, the heart rate is significantly bradycardic at 38 beats per minute, and the blood pressure is hypotensive at 82/45 mmHg. These abnormal values could indicate hemodynamic instability or a serious underlying cardiac condition.

32.

Which of the following is **not** considered protected health information?

Diagnosis

Name

Social security number

Date of birth

Correct answer: Diagnosis

A diagnosis is not considered an individually identifiable piece of protected health information.

33.

A Certified EKG Technician is preparing to perform an electrocardiogram (EKG) on a patient. While doing so, the technician notices another patient's EKG results left on the monitor screen.

Which of the following actions best complies with HIPAA regulations?

Log out of the system or clear the previous patient's data before proceeding

Continue with the current EKG and inform the supervisor afterward

Minimize the screen and proceed with the current patient's EKG

Leave the previous patient's data on the screen since it's in a secure area

Correct answer: Log out of the system or clear the previous patient's data before proceeding

According to HIPAA regulations, protected health information (PHI), including EKG results, must be protected from unauthorized access. Before starting the current patient's EKG, the technician should log out or clear the previous patient's data to ensure confidentiality.

Minimizing the screen or leaving the data on the screen are incorrect since these actions increase the risk of a privacy violation.

34.

Where is V6 placed on a patient?

In the fifth intercostal space at the midaxillary line

In the fourth intercostal space to the right of the sternum

In the fourth intercostal space to the left of the sternum

In the fifth intercostal space at the midclavicular line

Correct answer: In the fifth intercostal space in the midaxillary line

V6 is placed in the fifth intercostal space on the midaxillary line.

V1 is placed in the fourth intercostal space to the right of the sternum. V2 is placed in the fourth intercostal space to the left of the sternum, and V4 is placed in the fifth intercostal space on the midclavicular line.

35.

In some circumstances, the HIPAA Privacy Rule allows disclosure of protected health information (PHI) without patient authorization. Which of the following is **not** an included instance?

If the patient has overdue medical bills

If it is required by the law, such as a court subpoena

To report a death caused by criminal activity to the authorities

If the patient is a threat to themselves or others

Correct answer: If the patient has overdue medical bills

The HIPAA Privacy Rule allows certain instances where disclosing PHI is allowed without the explicit consent of the patient. This includes instances where the health entity is subpoenaed by a court of law, if a patient is an immediate threat to themselves or the public, if a patient dies under criminal circumstances, or if a patient is the victim of a crime.

The HIPAA Privacy Rule does not allow entities to disclose PHI on the basis of a delinquent account.

36.

Which of the following is **true** regarding the HIPAA complaint process?

A complaint can be filed via mail, fax, email, or online

A person has 60 days to file a HIPAA complaint

To keep your identity anonymous, only provide your first name in the complaint

Reports of HIPAA violations are handled by the Centers for Medicaid and Medicare Services (CMS)

Correct answer: A complaint can be filed via mail, fax, email, or online

HIPAA privacy complaints are handled by the Office for Civil Rights (OCR). Complaints can be sent to the OCR via mail, e-mail, fax, or through their online portal. The complaint must be made within 180 days of the incident, but this time can be extended in special circumstances.

While OCR needs personal information to investigate, the complainant's identity is confidential, and OCR prohibits retaliatory action of any kind.

37.

Which of the following is **not** considered a violation of HIPAA?

Discussing your patient with the tech who is relieving you of your shift

Complaining about a patient to your coworkers during lunch

Telling your mother about a difficult patient (whose identity she does not know) during your shift

Leaving a patient's chart open as you run to the bathroom

Correct answer: Discussing your patient with the tech who is relieving you of your shift

Discussing your patient with the tech who is relieving you of your shift is an acceptable disclosure of patient information, as long as you are in a private area. Never discuss your patients with family or friends or in a public area, such as in a cafeteria or an elevator.

38.

What does the acronym "PHI" represent?

Protected health information

Patient health information

Public health information

Privacy health information

Correct answer: Protected health information

Protected health information is an umbrella term for any patient information that is held by a covered entity; it is often abbreviated as the acronym PHI.

39.

According to the National Heart, Lung, and Blood Institute of the National Institute of Health, what value is the definition of high blood pressure?

Systolic pressure of 140 mm Hg or greater

Systolic pressure of 180 mm Hg or greater

Systolic pressure of 125 mm Hg or greater

Diastolic pressure of 100 mm Hg or greater

Correct answer: Systolic pressure of 140 mm Hg or greater

The definition of high blood pressure is a systolic pressure of 140 mm Hg or greater or a diastolic pressure of 90 mm Hg or greater.

Pre-hypertension is considered greater than 120 mm Hg. When systolic pressure reaches over 180 mm Hg, this is defined as a hypertensive crisis, which is a medical emergency.

40.

What is the most common mistake technicians make when applying limb leads?

Reversing the electrodes

Forgetting to shave the patient

Applying them to a wet patient

Using the wrong type of electrode

Correct answer: Reversing the electrodes

The most common mistake technicians make when applying limb leads is reversing the electrodes. This error occurs when the electrodes are not placed on the correct limbs, which can result in incorrect readings.

Forgetting to shave the patient, applying electrodes to a wet patient, and using the wrong type of electrode are less common mistakes but can still affect the quality of the EKG recording. Shaving the patient helps ensure good contact between the skin and the electrode, applying electrodes to dry skin helps prevent poor adhesion and signal interference, and using the correct type of electrode ensures compatibility and accurate readings. However, these issues are secondary to the critical importance of correct electrode placement.

41.

For patients who are unable to exercise, there are alternatives to traditional stress testing. These include adenosine stress testing and what else?

Dobutamine stress testing

Cardizem stress testing

Amiodarone stress testing

Albuterol stress testing

Correct answer: Dobutamine stress testing

For patients who are unable to exercise, there are alternatives to traditional stress testing. These include adenosine stress testing and dobutamine stress testing.

No stress tests are done with cardizem, amiodarone, or albuterol.

42.

Under what circumstances can your medical information **not** be shared by your provider?

If requested by your employer

If a police report is required

To protect public health

To improve the coordination of your care

Correct answer: If requested by your employer

The HIPAA privacy rule enforces situations in which PHI can and cannot be shared. Your health information can be shared in the following scenarios:

- *in a discussion between different providers to improve coordination of care*
- *if you experience an injury that requires law enforcement to be involved (e.g., a gunshot wound)*
- *if you suffer an illness that affects the public's health (e.g., influenza)*
- *to pay providers and hospitals for care*

Your information cannot be sent to your employers or used for marketing purposes.

43.

Under the omnibus rule of 2013, how long is patient health information protected?

50 years after death

Indefinitely

25 years after death

5 years after death

Correct answer: 50 years after death

Under the omnibus rule of 2013, patient health information is protected for 50 years after a person's death.

44.

What is the physiology of a stress test based upon?

Graded exercise

Acute exercise

Chronic exercise

Non-graded exercise

Correct answer: Graded exercise

The physiology of stress testing is based upon graded exercise. This allows for a safe and gradual increase in a patient's heart rate and blood pressure.

"Acute" and "chronic" are terms used to describe the onset of a medical condition.

45.

Why is HIPAA needed?

Technology

National security

Hospital funding

Mental health information

Correct answer: Technology

HIPAA is needed because of the assessability of patients' health information due to technology.

46.

A patient is experiencing intermittent episodes of palpitations and dizziness that occur a few times a month. The healthcare provider recommends an ambulatory monitor to capture these irregular heartbeats.

Which of the following types of monitors would be the most appropriate for this patient?

Event monitor

Holter monitor

Continuous telemetry monitor

Loop recorder

Correct answer: Event monitor

An event monitor is best suited for patients who experience symptoms intermittently, such as palpitations or dizziness that occur a few times a month.

Unlike a Holter monitor, which continuously records for a short period (24-48 hours), an event monitor is activated by the patient when symptoms occur. This allows for longer monitoring periods (weeks to months) and captures EKG data only during symptomatic episodes, making it ideal for identifying infrequent arrhythmias.

A continuous telemetry monitor is typically used in a hospital setting for real-time monitoring and is not practical for outpatient use over long periods.

A loop recorder is typically implanted under the skin and can monitor for long periods (up to several years), but it is not typically used for short-term monitoring a few times in one month.

47.

What refers to the pressure inside the artery when the heart contracts and pumps blood through the body?

Systolic pressure

Diastolic pressure

Hypertension

Osmotic pressure

Correct answer: Systolic pressure

Systolic pressure refers to the pressure inside the artery when the heart contracts and pumps blood through the body.

Hypertension refers to high blood pressure. Diastolic pressure refers to the pressure inside the artery when the heart is at rest and filling with blood. Osmotic pressure refers to pressure applied to a solvent to prevent it from passing into a solution.

48.

What does the bottom value of a blood pressure reading indicate?

The pressure of the arteries as the heart relaxes

The pressure of the arteries as the heart contracts

The pressure of the veins as the heart relaxes

Heart rate

Correct answer: The pressure of the arteries as the heart relaxes

The bottom value measures diastolic pressure, or the pressure of the arteries as the heart is relaxed (i.e., as the chambers fill). The top value of a blood pressure reading measures the systolic pressure, or the pressure of the arteries as the heart is contracting (expelling blood from the chambers).

Venous pressure is not measured by blood pressure.

49.

During an EKG examination, you notice that after two normal sinus beats, there is a prolonged pause followed by a beat without a preceding P wave. This beat has a normal (narrow) QRS complex.

Which of the following best explains this observation?

Sinus arrest followed by a junctional escape beat

Sinus tachycardia due to increased sympathetic activity

Sinus bradycardia resulting from enhanced vagal tone

Ventricular fibrillation initiating after sinus arrest

Correct answer: Sinus arrest followed by a junctional escape beat

The prolonged pause indicates that the sinus node has temporarily stopped firing, a condition known as sinus arrest. When this occurs, other pacemaker cells within the heart can initiate an impulse to maintain cardiac activity. A beat that follows sinus arrest without a preceding P wave and has a normal (narrow) QRS complex suggests that the impulse originated from the atrioventricular (AV) junction, resulting in a junctional escape beat.

Sinus tachycardia involves increased firing and faster rate without pauses or missing P waves.

Sinus bradycardia involves slow heart rate but typically doesn't involve pauses and escape beats.

Ventricular fibrillation is characterized by chaotic ventricular activity, typically without pauses.

50.

Which cardiac stress test method increases the speed and incline every three minutes?

Bruce protocol

Modified Bruce protocol

Naughton protocol

Modified Naughton protocol

Correct answer: Bruce protocol

The Bruce protocol involves increasing the speed and incline every three minutes.

The modified Bruce protocol is used for patients who can not handle the regular Bruce method by modifying the time and intensity of the intervals. The Naughton protocol starts the treadmill speed more slowly and changes increments more gradually. There is no modified Naughton protocol.

51.

What does the QT interval indicate?

The time from the start of ventricular depolarization to the end of ventricular repolarization

The duration of the QRS complex

Ventricular depolarization

Ventricular repolarization

Correct answer: The time from the start of ventricular depolarization to the end of ventricular repolarization

The QT interval refers to the time from the start of ventricular depolarization to the end of ventricular repolarization.

The QRS interval refers to the duration of the QRS complex. The QRS complex refers to ventricular depolarization, and the T wave represents ventricular repolarization.

52.

What is the fundamental electrical event of the heart?

Depolarization

Repolarization

Defibrillation

Sodium and potassium pump

Correct answer: Depolarization

Depolarization is the fundamental electrical event of the heart. Depolarization is the process by which cardiac cells lose their internal negativity.

Repolarization occurs when cardiac cells restore their resting polarity. Defibrillation is the means of providing a controlled shock to the heart. Sodium and potassium pumps are essential for the cellular functions of the body.

53.

Which of the following organizations is **not** subject to the HIPAA privacy rule?

Child Protective Services (CPS)

A third-party accounting firm hired by a clinic

A company hired by the hospital to process patient claims

Lawyers that represent a healthcare system

Correct answer: Child Protective Services (CPS)

In addition to covered entities (HMOs, physicians, hospitals), the Privacy Rule extends to business associates of the covered entities. Business associates require access to medical records to do their job and, therefore, are subject to the privacy rule. Examples of business associates are outside lawyers, third-party billing companies, and companies that administer healthcare plans.

Certain agencies are not subject to the Privacy Rule, including law enforcement, employers, school districts, municipal offices, and state agencies (e.g., CPS).

54.

Which of the following is an example of a situation where a Certified EKG Technician might inadvertently violate a patient's Protected Health Information (PHI) under HIPAA regulations?

Discussing a patient's electrocardiogram results in a public elevator with the patient's doctor

Sending a patient's electrocardiogram results via electronic fax to the attending physician

Accessing the patient's medical history to prepare for the EKG procedure

Documenting the patient's electrocardiogram results in the electronic health record (EHR)

Correct answer: Discussing a patient's electrocardiogram results in a public elevator with the patient's doctor

Under the Health Insurance Portability and Accountability Act (HIPAA), PHI must be protected from unauthorized disclosure. This answer represents a violation of HIPAA because discussing patient information in a public area, such as an elevator, where others can overhear, puts the patient's confidentiality at risk.

The other options are permissible under HIPAA when the information is shared or accessed in a confidential and professional manner within the scope of care delivery.

55.

What does the T wave represent?

Ventricular repolarization

Depolarization of the septum

Ventricular depolarization

First upward deflection after P wave

Correct answer: Ventricular repolarization

The T wave represents ventricular repolarization.

Depolarization of the septum appears as a Q-wave.

Ventricular depolarization is represented on an electrocardiogram (ECG) by the QRS complex.

The first upward deflection after P wave is the R wave.

56.

An EKG technician is instructing a patient on how to use an event monitor for capturing infrequent episodes of palpitations.

Which of the following statements by the patient demonstrates a clear understanding of how to use the event monitor correctly?

“I should press the activation button on the monitor whenever I feel symptoms, and it will record what happens before, during, and after the episode.”

“I need to wear the event monitor continuously for 24–48 hours, and it will automatically record any abnormal rhythms without me needing to do anything.”

“I should only use the monitor if I have symptoms every day; otherwise, it’s not necessary.”

“I need to hold the monitor up to my chest and turn it on once a day, even if I don’t have symptoms.”

Correct answer: “I should press the activation button on the monitor whenever I feel symptoms, and it will record what happens before, during, and after the episode.”

Event monitors are used to record heart rhythms during infrequent episodes of arrhythmia symptoms, such as palpitations, dizziness, or chest discomfort. The patient must press an activation button when they experience symptoms. The monitor will then record the heart’s electrical activity for a few seconds or minutes before, during, and after the activation to capture a complete picture of the arrhythmia event. This recording can then be transmitted for evaluation.

A continuous 24-48 hour recording is typical for a Holter monitor, not an event monitor. An event monitor requires patient activation during symptoms rather than continuous monitoring.

The monitor should be used any time symptoms occur, regardless of how frequently they are experienced. It is especially helpful for patients who have infrequent symptoms.

An event monitor is not used on a daily schedule but rather activated as needed when symptoms arise.

57.

Which of the following is **not** done prior to a stress test?

An ergometer is applied to the upper arm

A resting EKG is recorded

The patient's baseline vitals are obtained

An EKG is performed as the patient is standing and breathing rapidly

Correct answer: An ergometer is applied to the upper arm

Before the stress test occurs, the patient needs a baseline EKG, baseline vitals, and a health history obtained. The patient also needs a standing EKG while hyperventilating to rule out false ST changes during the test.

An ergometer is an arm bicycle that is used if the patient is unable to perform the test on a treadmill or stationary bike.

58.

Which of the following is **not** a type of penalty under HIPAA?

Judicial

Inadvertent

Civil

Criminal

Correct answer: Judicial

While there is a judicial decision in some cases, it is not a type of penalty. The three types of penalties are inadvertent, civil, and criminal.

59.

There are two goals of HIPAA. One is to limit the use of protected health information to those who need to know. What is the second?

To penalize those who do not comply with the confidentiality regulations

To assist others in obtaining the necessary information to identify patients

To keep patients' families informed

To assist in medical decision-making when a patient is no longer able to do so

Correct answer: To penalize those who do not comply with the confidentiality regulations

The two goals of HIPAA include limiting the use of protected health information and penalizing those who do not comply with the confidentiality regulations.

60.

A patient comes into the clinic for an EKG. Upon review of the results, you notice the waveform from lead V4 is abnormal, showing inconsistent readings. You double-check the lead placement and find that the lead was placed in the fourth intercostal space instead of the correct location.

What adjustment should you make, and how might this improve the accuracy of the EKG tracing?

Move the lead inferiorly to the fifth intercostal space at the midclavicular line, which correctly corresponds to lead V4 placement for standard EKG readings

Move the lead laterally, placing it on the anterior axillary line, ensuring a clearer signal by avoiding interference from breast tissue

Move the lead to the fifth intercostal space but on the right side of the chest in case the patient has dextrocardia

Move the lead superiorly to the third intercostal space, lateral to the sternum. This will provide more accurate readings by aligning with the pulmonary artery.

Correct answer: Move the lead inferiorly to the fifth intercostal space at the midclavicular line, which correctly corresponds to lead V4 placement for standard EKG readings

The correct placement of lead V4 is in the fifth intercostal space at the midclavicular line.

Moving the lead superiorly suggests placing the lead too high, which would result in inappropriate readings.

Moving the lead laterally or to the right side of the chest is not standard for lead V4 placement.

61.

Which of the following patients would not be appropriate for stress testing?

A 42-year-old woman whose current blood pressure is 170/80 without symptoms

A 38-year-old male with a normal EKG and a diagnosis of chest pain who has no symptoms in the office

A 55-year-old male who had a recent myocardial infarction

A 48-year-old woman with recent complaints of shortness of breath and palpitations

Correct answer: A 42-year-old woman whose current blood pressure is 170/80 without symptoms

A patient who presents in the office with severe hypertension is not an appropriate candidate for stress testing. Hypertension is a contraindication for stress testing. Other contraindications include any acute systemic illness, severe aortic stenosis, uncontrolled congestive heart failure, angina at rest, and the presence of significant arrhythmia.

A 38-year-old male with a normal EKG and a diagnosis of chest pain with no symptoms in the office needs stress testing for a differential diagnosis of chest pain; this answer would be correct if the patient was experiencing chest pain in the office.

A 55-year-old male who had a recent myocardial infarction needs stress testing to evaluate the need for further treatment, such as cardiac catheterization.

A 48-year-old woman with recent complaints of shortness of breath and palpitations may have silent ischemia and needs stress testing for further workup.

62.

Which of the following is the best non-invasive method of screening for coronary artery disease?

Stress testing

Cardiac catheterization

12-lead EKG

MRI angiography

Correct answer: Stress testing

The best non-invasive procedure to assess for the presence of coronary artery disease is the stress test.

A 12-lead EKG, while the most important piece of information for the stress test, does not alone diagnose a patient because the heart has to be going through exertion to demonstrate the rhythm changes that signal CAD.

Cardiac catheterization and MRI angiography are invasive procedures.

63.

What does a P wave represent?

Atrial depolarization

Atrial repolarization

Ventricular depolarization

Ventricular repolarization

Correct answer: Atrial depolarization

A P wave represents atrial depolarization.

Atrial repolarization is lost within the QRS complex.

Ventricular depolarization is represented by the QRS complex.

Ventricular repolarization is represented by the T wave.

64.

An EKG technician is preparing to perform an electrocardiogram on a patient who appears anxious and asks, "What exactly will you be doing during this test?"

Which of the following responses best reflects the technician's role and responsibilities?

"I will be attaching electrodes to your chest to record your heart's electrical activity. I'll explain each step as we go."

"I will be assisting the doctor, this is just a routine test and there's no need to worry. Let's get started."

"The doctor will discuss everything with you afterward. Please lie down so we can begin."

"Try not to speak during the test since it will affect the reading."

Correct answer: "I will be attaching electrodes to your chest to record your heart's electrical activity. I'll explain each step as we go."

This response provides clear information, alleviates patient anxiety, and promotes open communication. By explaining the procedure, the technician ensures the patient feels informed and comfortable, which can lead to more accurate test results.

The other responses defer and dismiss the patient's concerns instead of addressing them.

65.

A 62-year-old patient with a history of chronic hypertension and left ventricular hypertrophy presents for an electrocardiogram (EKG). During the procedure, the patient complains of shortness of breath and chest tightness.

Which of the following signs and symptoms should alert the EKG technician to potential cardiopulmonary compromise associated with hypertrophied myocardium?

Fatigue, dyspnea on exertion, and possible syncope

Increased energy levels and hypertension

Bradycardia and hypotension with cool, dry skin

Weight loss and hyperactivity due to increased metabolism

Correct answer: Fatigue, dyspnea on exertion, and possible syncope

Patients with left ventricular hypertrophy due to chronic hypertension may experience a compromised ability of the heart to pump blood effectively, leading to signs and symptoms of cardiopulmonary compromise. Fatigue, dyspnea on exertion (shortness of breath during activity), and possible syncope (fainting) are common symptoms resulting from the heart's decreased efficiency and the myocardium's increased oxygen demand coupled with reduced capillary density. These symptoms indicate that the hypertrophied heart muscle is struggling to meet the body's metabolic needs, especially during periods of increased activity.

Increased energy levels are not associated with cardiopulmonary compromise.

Bradycardia (slow heart rate) and hypotension (low blood pressure) with cool, dry skin are more indicative of other conditions like shock or certain arrhythmias, not specifically the effects of hypertrophied myocardium.

Weight loss and hyperactivity due to increased metabolism are associated with conditions like hyperthyroidism, not cardiopulmonary compromise from left ventricular hypertrophy.

66.

In regard to HIPAA's privacy rules, what does disclosure mean?

How information is shared outside of a health care facility

How information is shared inside a health care facility

How information is used by physicians

How information is shared by patients' families

Correct answer: How information is shared outside of a health care facility

In regard to HIPAA's privacy rules, disclosure refers to how information is shared outside a health care facility.

67.

During an electrocardiogram (EKG) on a 60-year-old patient, the technician observes that the patient's blood pressure is 90/55 mmHg, heart rate is 44 beats per minute, and the patient complains of dizziness.

What should the technician do next?

Stop the EKG and notify the healthcare provider

Continue with the EKG procedure as these are normal vital signs for an elderly patient

Continue with the test and recheck the vital signs in 10 minutes

Administer oxygen and call for emergency assistance

Correct answer: Stop the EKG and notify the healthcare provider

A blood pressure of 90/55 mmHg and a heart rate of 44 bpm are concerning, especially when accompanied by feeling dizzy or lightheaded. The focus should first be on notifying the healthcare provider and preventing injury.

Rechecking the vitals later could delay necessary intervention by the provider.

Administering oxygen without an order is not the best choice and could be outside the technician's scope of practice depending on the setting.

68.

What term indicates the force of blood pushing against the artery wall during the contraction and relaxation of the heart?

Blood pressure

Cardiac output

Pulse rate

Myocardial syndrome

Correct answer: Blood pressure

Blood pressure is the force of the blood pushing against the artery wall during the contraction and relaxation of the heart.

The pulse rate is the number of times the heart beats in one minute. Cardiac output is the product of the heart rate and stroke volume. There is no such thing as myocardial syndrome.

69.

What does portability refer to in the context of HIPAA?

Continuation of coverage availability or denial of coverage for pre-existing conditions

Continuation of some coverage with no denial of any pre-existing conditions

Continuation of whole coverage regardless of current medical conditions

No continuation of coverage

Correct answer: Continuation of coverage availability or denial of coverage for pre-existing conditions

Portability refers to the continuation of coverage or denial of coverage due to pre-existing conditions.

70.

Which of the following is considered a normal respiratory rate?

16

10

25

8

Correct answer: 16

A normal respiratory rate is defined as 12 to 16 breaths per minute.

71.

Which of the following temperatures would be expected in a hypothermic patient?

94.8 degrees Fahrenheit

96 degrees Fahrenheit

97.8 degrees Fahrenheit

99 degrees Fahrenheit

Correct answer: 94.8 degrees Fahrenheit

Hypothermia is defined as a body temperature below 95 degrees Fahrenheit.

72.

Which of the following is not one of the three things that can happen to a wave on the EKG with enlargement or hypertrophy?

The wave can decrease in duration.

The wave can increase in duration.

The wave can increase in amplitude.

The electrical axis of the wave can deviate from normal.

Correct answer: The wave can decrease in duration.

A decrease in duration is not one of the three things that can happen to a wave on the EKG with enlargement or hypertrophy.

The three things that can occur during hypertrophy or enlargement include the following:

- *The wave can increase in duration.*
 - *The wave can increase in amplitude.*
 - *The electrical axis of the wave can deviate from normal.*
-

73.

What position should the patient be in for a 12-lead ECG?

Lying down

Standing

Semi-Fowler's position

Prone

Correct answer: Lying down

When taking a 12-lead ECG, the patient must lie down.

A semi-Fowler's position is at a 45-degree angle, and the prone position is face down.

74.

What does the top value of a blood pressure reading represent?

The pressure of the arteries as the heart contracts

The pressure of the arteries as the heart is relaxed

The pressure of the veins when the heart is contracting

The heart rate

Correct answer: The pressure of the arteries as the heart contracts

The top value of a blood pressure reading measures the systolic pressure, or the pressure of the arteries as the heart is contracting (expelling blood from the chambers). The bottom value measures diastolic pressure, or the pressure of the arteries as the heart is relaxed (as the chambers fill).

Venous pressure is not measured by blood pressure.

75.

Which of the following is not an indication for stress testing?

Evaluate the need for further testing in an 80-year-old woman with severe aortic stenosis

Diagnose chest pain in a 50-year-old man whose baseline EKG is normal

Assess the prognosis of a 70-year-old female who has had a known myocardial infarction

Evaluate a 45-year-old male with diabetes and a family history of heart disease

Correct answer: Evaluate the need for further testing in an 80-year-old woman with severe aortic stenosis

Stress testing may be indicated for several reasons:

- 1. To differentiate chest discomfort in patients with a normal baseline EKG*
- 2. To evaluate prognosis and the need for invasive testing, like cardiac catheterization, after a recent heart attack*
- 3. To assess those over 40 with risk factors for coronary artery disease, such as diabetes, peripheral vascular disease, prior heart attacks, or a family history of heart disease*
- 4. To investigate silent ischemia in patients without chest pain but with symptoms like shortness of breath, fatigue, or palpitations during exertion*

Contraindications to stress testing include acute systemic illness, severe aortic stenosis, uncontrolled heart failure, severe hypertension, resting angina, and significant arrhythmias.

76.

During a standard 12-lead EKG procedure, you notice that the patient's EKG tracing shows unexpected abnormalities in the septal leads, specifically leads V1 and V2. Suspecting a misplacement of the electrodes, you decide to verify their positions. You find that one of the chest electrodes is not correctly placed.

What action should you take to correct the electrode placement?

Reposition lead V2 to the fourth intercostal space at the left sternal border to ensure accurate monitoring of the septal region

Move lead V2 to the fifth intercostal space at the midclavicular line to enhance the detection of lateral wall abnormalities

Adjust lead V1 to the fourth intercostal space at the left sternal border to improve right ventricular readings

Place lead V3 directly between leads V4 and V5 to obtain better anterior wall visualization

Correct answer: Reposition lead V2 to the fourth intercostal space at the left sternal border to ensure accurate monitoring of the septal region

Lead V2 should be placed in the fourth intercostal space at the left sternal border. This position is crucial for accurately capturing electrical activity from the septal area of the heart.

Placing lead V2 in the fifth intercostal space at the midclavicular line corresponds to the placement of lead V4, which monitors the anterior wall, not the septal region.

Moving lead V1 to the left would overlap with the correct position of lead V2 and still not correct the septal lead issue.

Adjusting lead V3 would not resolve abnormalities seen in leads V1 and V2, which are specific to the septal region.

77.

During a stress test, the angle of the treadmill continues to increase until one of four things occurs. Which of the following is not a reason to stop the stress test?

The test runs out of time

The patient cannot continue for any reason

Significant changes are seen in the EKG

The patient's maximal heart rate is achieved

Correct answer: The test runs out of time

During a stress test, the angle of the treadmill continues to increase until symptoms such as chest pain occur, the patient cannot continue for any reason, significant changes are seen in the EKG, or the patient's maximal heart rate is achieved.

78.

Which of the following is the **correct** way to assess a patient's pulse rate?

Using your first and second fingertips, apply pressure over the radial artery and count the number of pulses for 60 seconds

Using your thumb, apply pressure over the radial artery and count the number of pulses for 60 seconds

Using your first and second fingertips, apply pressure over the antecubital space and count the number of pulses for 60 seconds

Using your first and second fingertips, apply pressure over the radial artery, count the pulses for 30 seconds, and divide that number by two

Correct answer: Using your first and second fingertips, apply pressure over the radial artery and count the number of pulses for 60 seconds

The most accurate way to check a patient's pulse is to apply pressure with your first and second fingertips over the radial artery and count the number of pulses for 60 seconds. Do not continuously watch the clock to avoid losing your count.

79.

Which of the following is not one of the membrane pumps that ensures the appropriate distribution of ions for electrical polarity?

Iron

Sodium

Potassium

Chloride

Correct answer: Iron

Potassium, sodium, chloride, and calcium are membrane pumps that ensure the appropriate distribution of ions for electrical polarity.

80.

Why are glass thermometers a safety concern?

Mercury is a toxic substance.

The glass poses a cutting hazard.

A child might bite it in half.

Glass is flammable.

Correct answer: Mercury is a toxic substance.

*Glass thermometers are a safety concern because of the mercury inside them.
Mercury is considered toxic.*

81.

Which of the following entities is **not** subject to the HIPAA Privacy Rule?

Law enforcement

Medicare and Medicaid

Healthcare providers

Outside contractors that provide service to a covered entity

Correct answer: Law enforcement

Covered entities that are required to comply with the HIPAA Privacy Rule are healthcare plans (including Medicare and Medicaid), medical centers, healthcare providers, and business associates of covered entities (e.g., contractors).

State agencies (e.g., CPS), law enforcement agencies, employers, and school districts are not required to follow HIPAA.

82.

What is considered normal blood pressure?

Systolic below 120 and diastolic below 80

Systolic 120-129 and diastolic below 80

Systolic between 130 and 139 and diastolic between 80 and 89

Systolic 140 or higher and diastolic greater than 90

Correct answer: Systolic below 120 and diastolic below 80

Normal blood pressure is considered to have a systolic pressure below 120 and a diastolic pressure below 80.

Elevated blood pressure is systolic 120-129 and diastolic below 80. Stage 1 is systolic between 130 and 139 and diastolic between 80 and 89, and stage 2 is systolic 140 or higher and diastolic greater than 90.

83.

What is the electrical tracing of an electrical cycle of depolarization from a single cell?

Action potential

12-lead ECG

4-lead ECG

Stress test

Correct answer: Action potential

The electrical tracing of one electrical cycle of depolarization (i.e., from a single cell) is called an action potential.

4-lead and 12-lead ECGs provide pictures of the heart.

A stress test is not a type of tracing.

84.

An EKG technician notices signs of left ventricular hypertrophy on a patient's electrocardiogram. While this finding is not immediately life-threatening, why is it important to recognize and report it?

Because it suggests underlying cardiac conditions that may need long-term management adjustments

Because it is a genetic condition passed down from the mother or father

Because it indicates an evolving myocardial infarction requiring urgent intervention

Because it is important to tell patients what you see on their EKG

Correct answer: Because it suggests underlying cardiac conditions that may need long-term management adjustments

Recognizing left ventricular hypertrophy on an EKG is clinically important because it often reflects underlying conditions such as chronic hypertension or valvular heart disease. While it may not require immediate emergency intervention like an acute myocardial infarction or a lethal arrhythmia, it has significant implications for the patient's long-term health. Identifying hypertrophy allows healthcare providers to adjust treatment plans to address the underlying cause, potentially preventing future complications like heart failure.

Left ventricular hypertrophy does not indicate an acute myocardial infarction.

Although genetics play a role in cardiac diseases, it is not an inherited condition.

85.

During a stress test, how often is a 12-lead ECG done?

Every minute and at the peak of exercise

Every five minutes

At the beginning and at the peak of exercise

When the technician feels it is needed

Correct answer: Every minute and at the peak of exercise

During a stress test, a 12-lead ECG is done every minute and at the peak of exercise. The patient is hooked up to an EKG monitor, and a rhythm strip is monitored throughout the test.

Every few minutes, the speed and angle of incline of the treadmill are increased until:

- 1. The patient cannot continue for any reason*
 - 2. The patient's maximal heart rate is achieved*
 - 3. Symptoms, such as chest pain, supervene*
 - 4. Significant changes are seen on the EKG*
-

86.

A patient undergoing an EKG test suddenly reports severe chest pain radiating to the left arm and jaw. The EKG shows ST-segment elevation in leads II, III, and aVF.

Based on these findings, which of the following best describes the likely underlying condition?

Acute myocardial infarction involving the inferior wall

Pericarditis with widespread ST-segment elevation

Myocardial ischemia affecting the left ventricle

Pulmonary embolism with right heart strain

Correct answer: Acute myocardial infarction involving the inferior wall

The patient's symptoms with ST-segment elevation in leads II, III, and aVF, strongly suggest an acute myocardial infarction (MI) involving the inferior wall of the heart. Leads II, III, and aVF correspond to the inferior region of the left ventricle, which is typically supplied by the right coronary artery (RCA). An MI in this area is a medical emergency that requires immediate recognition and treatment.

Pericarditis usually presents with diffuse (widespread) ST-segment elevation and is not limited to specific regions like the inferior wall.

Myocardial ischemia can present with ST changes, but the significant ST-segment elevation in leads II, III, and aVF is more indicative of a complete infarction, not just ischemia.

Pulmonary embolism does not typically cause ST-segment elevation in leads II, III, and aVF. It is more likely to cause right heart strain patterns or changes in lead V1 and the right precordial leads.

87.

Which cardiac monitor is specifically designed for continuous monitoring of a patient's heart rhythm over an extended period, allowing for the detection of intermittent arrhythmias?

Holter monitor

Event monitor

Telemetry monitor

Standard 12-lead EKG

Correct answer: Holter monitor

A Holter monitor is designed for continuous recording of the heart's electrical activity, typically over a 24 to 48-hour period, making it ideal for detecting intermittent arrhythmias that may not appear during a standard EKG.

While an event monitor also records heart rhythms, it only records when the patient activates the device in response to symptoms. Monitoring is not continuous.

A telemetry monitor provides real-time monitoring of a patient's heart rhythm, often used in a hospital setting for continuous observation, but it does not allow for the same extended recording as a Holter monitor.

A standard 12-lead EKG provides a snapshot of the heart's activity at a specific moment and is not intended for continuous monitoring.

88.

Which of the following is **not** protected by the HIPAA Privacy Rule?

Employment records

Information related to an individual's past, present, and future medical care

The costs related to an individual's medical care

Individually identifiable information, such as name, birthday, address, and social security number

Correct Answer: Employment records

The HIPAA Privacy Rule protects all identifiable health information, including but not limited to information regarding past, present, and future care; medical costs of an individual; and any information that identifies an individual, including demographics.

The privacy rule does not apply to employment records that a covered entity maintains as an employer (not a provider of care).

89.

What two things does a pulse rate measure?

Heart rhythm and pulse strength

Volume and pulse strength

Volume and heart rate

Systolic pressure

Correct answer: Heart rhythm and pulse strength

Taking a pulse measures the pulse rate and rhythm.

The volume is measured in milliliters, and systolic pressure is exerted when the heart beats and blood is ejected into the arteries.

90.

Where is V1 placed?

At the fourth intercostal space to the right of the sternum

Between V4 and V6

Between V2 and V4

At the fourth intercostal space to the left of the sternum

Correct answer: At the fourth intercostal space to the right of the sternum

V1 is placed in the fourth intercostal space to the right of the sternum.

V5 is placed between V4 and V6. V3 is placed between V2 and V4, and V2 is placed in the fourth intercostal space to the left of the sternum.

91.

An EKG technician notes that the distance between two consecutive R-waves is 5 large squares.

What is the patient's approximate heart rate?

60 beats per minute

30 beats per minute

50 beats per minute

100 beats per minute

Correct answer: 60 beats per minute

To estimate the heart rate on an EKG, you can count the large squares and use the "300 rule."

This method involves dividing 300 by the number of large squares between 2 consecutive R-waves.

$$300 \div 5 = 60$$

Therefore, the patient's heart rate is approximately 60 beats per minute.

92.

The six precordial leads are arranged across the patient's chest in what type of plane?

Horizontal plane

Verticle plane

Diagonal plane

Midaxillary plane

Correct answer: Horizontal plane

The six precordial leads are arranged across the patient's chest in a horizontal plane.

93.

An EKG technician is performing an EKG on a patient who appears anxious and mentions feeling a bit light-headed. The tracing shows borderline ST-segment changes that appear concerning, but the EKG machine has not flagged them as abnormal.

What is the best course of action for the technician in this situation?

Consider the patient's symptoms in conjunction with the EKG findings and notify the healthcare provider for further evaluation

Inform the patient that the EKG is normal because the machine did not flag any abnormalities

Reassure the patient that the symptoms are likely unrelated to the EKG findings and encourage them to relax

Ignore the patient's symptoms and proceed with completing the test as planned

Correct answer: Consider the patient's symptoms in conjunction with the EKG findings and notify the healthcare provider for further evaluation

While the EKG machine may not flag subtle or borderline findings, it is important for the EKG technician to consider the clinical context when interpreting results. The technician should take into account the patient's symptoms, such as feeling light-headed, which may suggest an underlying cardiac issue. Communicating these concerns to the healthcare provider ensures that the patient receives appropriate and timely evaluation.

Ignoring or dismissing the patient's symptoms based solely on the machine's interpretation could lead to mismanagement or delayed treatment of a potentially serious condition.

94.

What does the acronym "HIPAA" represent?

Health Insurance Portability and Accountability Act

Health Insurance Accountability and Portability Act

Health Identification Portability and Accountability Act

Health Insurance Privacy and Accountability Act

Correct answer: Health Insurance Portability and Accountability Act

The acronym HIPAA stands for the Health Insurance Portability and Accountability Act. HIPAA was created to help protect the personal information of citizens, reduce healthcare fraud, and provide easier access to health care.

95.

Which of the following is **not** one of the ways a person's body temperature can be taken?

Nasally

By touch

By ear

Orally

Correct answer: Nasally

Nasally is not one of the ways a person's body temperature can be taken.

The five ways a person's body temperature can be taken include orally, rectally, axillary, by ear, or by touch.

96.

An EKG technician is educating a patient on Holter monitor lead placement for a 5-lead Holter monitor. The technician places the electrodes on the patient's chest, ensuring proper positioning for accurate 24-hour recording.

Which of the following statements about lead placement is correct?

The red lead should be placed on the left lower rib cage, and the white lead should be placed on the right shoulder area

The black lead should be placed on the left side of the sternum at the fifth intercostal space, and the green lead should be placed on the right lower rib cage

The right arm (RA) lead should be placed on the right lower abdomen, and the left leg (LL) lead should be placed on the left shoulder

All leads should be placed directly over bony areas to ensure secure attachment during the monitoring period

Correct answer: The red lead should be placed on the left lower rib cage, and the white lead should be placed on the right shoulder area

For a standard 5-lead Holter monitor, the correct lead placement is as follows:

- **White lead (RA):** Right shoulder or just below the clavicle.
 - **Black lead (LA):** Left shoulder or just below the clavicle.
 - **Red lead (LL):** Left lower rib cage or lower abdomen.
 - **Green lead (RL):** Right lower rib cage or lower abdomen (ground lead).
 - **Brown lead (V):** Typically placed at the fourth intercostal space to the right of the sternum or depending on the specific Holter monitor configuration.
-

97.

Which of the following is **not** a method used to conduct a stress test?

Switching from lying to a seated position

Riding a stationary bike

Running on a treadmill

Receiving an IV infusion of dobutamine

Correct answer: Switching from lying to a seated position

To assess cardiac function accurately, the heart must be placed under a considerate amount of stress. The methods used by health practitioners include running on the treadmill, riding a stationary bike, or receiving an IV infusion of medication that will raise the heart rate (e.g., dobutamine).

98.

On what date did HIPAA actually take effect?

April 14, 2003

June 4, 2000

August 10, 1996

July 4, 2001

Correct answer: April 14, 2003

HIPAA officially took effect on April 14th, 2003.

99.

During a graded exercise stress test, a patient exhibits horizontal ST-segment depression of 2 mm that persists for more than 0.08 seconds after the J point in multiple EKG leads.

Which of the following is the most accurate interpretation of this finding?

Indicative of significant coronary artery disease due to myocardial ischemia

Normal physiological response to exercise without evidence of coronary artery disease

Non-specific T-wave changes with no clinical significance

Suggestive of an unstable plaque and impending myocardial infarction requiring immediate intervention

Correct answer: Indicative of significant coronary artery disease due to myocardial ischemia

A horizontal or down-sloping ST-segment depression of greater than 1 mm that persists for more than 0.08 seconds after the J point during a stress test is suggestive of coronary artery disease (CAD). A depression of 2 mm increases the specificity of the test, indicating significant myocardial ischemia due to inadequate oxygen supply to meet the increased demands during exercise. This finding reflects subclinical CAD that may not be apparent on a resting EKG but becomes evident under stress.

ST-segment elevation, not depression, suggests unstable plaque and impending myocardial infarction requiring immediate intervention.

100.

What part of the conduction cycle does the PR interval represent?

The time from the start of atrial depolarization to the start of ventricular depolarization

Atrial depolarization

Ventricular repolarization

The time from the start of atrial depolarization to the end of ventricular repolarization

Correct answer: The time from the start of atrial depolarization to the start of ventricular depolarization

The PR interval represents the time from the start of atrial depolarization (P wave) to the start of ventricular depolarization (QRS complex). This interval reflects the electrical conduction from the sinoatrial (SA) node through the atria and the atrioventricular (AV) node down to the ventricles.

Atrial depolarization is represented by the P wave, not the PR interval.

Ventricular repolarization is represented by the T wave, which occurs after the QRS complex.

The time from the start of atrial depolarization to the end of ventricular depolarization is incorrect because it includes both the PR interval and the QRS complex, extending into the ST segment. The PR interval only represents the time from the start of atrial depolarization to the start of ventricular depolarization, ending just before the QRS complex begins.
