Electrocardiography (EKG) Course Study Guide

1. Which chamber of the heart pumps oxygenated blood to the body?
2. What is the function of the atria in the heart?
3. Deoxygenated blood returns to the heart via the:
4. The valve that prevents backflow between the left atrium and ventricle is the:
5. The heart is enclosed in a sac called the:
6. Which blood vessels carry blood away from the heart?
7. The right side of the heart pumps blood to the:
8. Oxygen-rich blood enters the left atrium through the:
9. The muscular layer of the heart responsible for contraction is the:
10. The septum of the heart separates the:
11. What is the primary function of the SA node?
12. Where is the SA node located?
13. What is the typical firing rate of the SA node?
14. The AV node is responsible for:
15. Which structure carries impulses from the AV node to the bundle branches?
16. The Purkinje fibers are located in the:
17. The Bundle of His divides into:
18. Which part of the conduction system directly causes ventricular contraction?
19. Which part of the conduction system is known as the “gatekeeper”?
20. If the SA node fails, what takes over as the pacemaker?
21. What component of the EKG machine amplifies electrical signals from the heart?
22. What is the function of the EKG electrodes?
23. How many electrodes are typically used for a 12-lead EKG?
24. Where is Lead V1 placed on the patient’s chest?
25. Which of the following leads is a limb lead?
26. Which type of lead records electrical activity in a horizontal plane?
27. Which leads are formed from a combination of two limb electrodes?
28. What should be done to ensure good electrode adhesion?
29. Which lead is typically used as the ground lead in a 12-lead EKG?
30. What is the main purpose of the EKG lead wires?
31. What is the primary role of automated EKG interpretation software?
32. Which of the following is a limitation of AI-based EKG interpretation?
33. AI interpretation of EKGs is typically considered:

34. Which type of rhythm is AI most likely to misread due to waveform noise or muscle artifact?
35. What does AI software in modern EKG machines use to classify rhythms?
36. Which of the following is a potential benefit of automated EKG analysis?
37. Why must human technicians still review AI-interpreted EKGs?
38. In a hospital setting, automated EKG interpretation is usually reviewed by:
39. What does AI look for to determine heart rate from an EKG strip?
40. Which standard helps ensure AI EKG interpretation tools follow safety and accuracy guidelines?
41. Which of the following is the expected heart rate range for normal sinus rhythm?
42. A rhythm originating in the atria, with abnormal P waves and a rapid, sawtooth pattern, is most likely:
43. What defines a sinus arrhythmia?
44. A junctional rhythm typically presents with:
45. A ventricular rhythm is most often identified by:
46. Which rhythm is considered life-threatening and requires immediate intervention?
47. A junctional escape rhythm usually has a rate of:
48. What is the hallmark of atrial fibrillation on an EKG strip?
49. Sinus tachycardia is characterized by:
50. Which of the following rhythms most likely originates in the ventricles?
51. What is the primary purpose of HIPAA?
52. Which of the following is a violation of HIPAA?
53. OSHA regulations are primarily concerned with:
54. What personal protective equipment (PPE) is required during contact with blood or body fluids?
55. What is the most effective method of infection control in healthcare settings?
56. Which of the following is considered proper patient interaction protocol?
57. Which of the following practices can prevent cross-contamination during an EKG procedure?
58. What should you do if a patient refuses care or an EKG procedure?
59. According to OSHA, sharps must be disposed of in:
60. Which of the following actions supports patient dignity and professionalism during interaction?
61. Which rhythm is considered life-threatening and requires immediate intervention?
62. Which rhythm is considered life-threatening and requires immediate intervention?
63. Deoxygenated blood returns to the heart via the:
64. Which blood vessels carry blood away from the heart?
65. Deoxygenated blood returns to the heart via the:
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67. A rhythm originating in the atria, with abnormal P waves and a rapid, sawtooth pattern, is most likely:
68. Which of the following is considered proper patient interaction protocol?
69. Deoxygenated blood returns to the heart via the:.
70. Where is Lead V1 placed on the patient's chest?
71. In a hospital setting, automated EKG interpretation is usually reviewed by:
72. The valve that prevents backflow between the left atrium and ventricle is the:
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80. Where is Lead V1 placed on the patient's chest?
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82. The right side of the heart pumps blood to the:
83. The valve that prevents backflow between the left atrium and ventricle is the:
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93. Which type of lead records electrical activity in a horizontal plane?
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95. What is the most effective method of infection control in healthcare settings?
96. The valve that prevents backflow between the left atrium and ventricle is the:
97. What is the most effective method of infection control in healthcare settings?
98. OSHA regulations are primarily concerned with:
99. Which leads are formed from a combination of two limb electrodes?
100. Where is the SA node located?

EKG and Cardiac Fundamentals Answer Key

1. Left ventricle.
2. Atria receive and transfer blood to ventricles.
3. Superior and inferior vena cava.
4. Mitral (bicuspid) valve.
5. Pericardium.
6. Arteries.
7. Lungs (pulmonary circulation).
8. Pulmonary veins.
9. Myocardium.
10. Right and left sides of the heart.
11. Initiates heartbeat (natural pacemaker).
12. Right atrium.
13. 60–100 beats per minute.
14. Delays impulses for ventricular filling.
15. Bundle of His.
16. Ventricular walls.
17. Right and left bundle branches.
18. Purkinje fibers.
19. AV node.
20. AV node or Bundle of His (junctional pacemaker).
21. Amplifier.
22. Detect and transmit electrical signals.
23. 10 electrodes (produces 12 leads).
24. 4th intercostal space, right sternal border.
25. Lead I, II, or III.
26. Precordial (chest) leads.
27. Augmented limb leads (aVR, aVL, aVF).
28. Clean and dry skin before applying electrodes.
29. Right leg (green).
30. Transmit signals from electrodes to machine.
31. Analyze and provide preliminary interpretations.
32. Potential for misinterpretation of artifacts.
33. A diagnostic aid, not a final interpretation.
34. Atrial fibrillation or noisy tracings.
35. Machine learning algorithms and pattern recognition.
36. Faster preliminary detection of abnormalities.
37. To verify and confirm accuracy.
38. Licensed healthcare professional (physician or cardiologist).
39. R-R interval spacing.

40. FDA and IEC standards for medical devices.
41. 60–100 bpm.
42. Atrial flutter.
43. Slightly irregular rhythm due to breathing.
44. Absent or inverted P waves, narrow QRS.
45. Wide, bizarre QRS complexes.
46. Ventricular fibrillation (V-fib).
47. 40–60 bpm.
48. Irregular baseline with no P waves (chaotic).
49. Rate above 100 bpm with regular rhythm.
50. Ventricular tachycardia.
51. Protects patient privacy and health information.
52. Discussing patient info publicly or without consent.
53. Workplace and employee safety.
54. Gloves, gown, mask, and eye protection as needed.
55. Hand hygiene (washing hands).
56. Introduce yourself, explain the procedure respectfully.
57. Use gloves, sanitize hands and equipment between patients.
58. Respectfully document and notify provider.
59. Approved sharps container.
60. Knock before entering, cover patient when possible.
61. Ventricular fibrillation.
62. Ventricular fibrillation.
63. Superior and inferior vena cava.
64. Arteries.
65. Superior and inferior vena cava.
66. Superior and inferior vena cava.
67. Atrial flutter.
68. Communicate respectfully and explain procedures.
69. Superior and inferior vena cava.
70. 4th intercostal space, right sternal border.
71. Physician or cardiologist.
72. Mitral (bicuspid) valve.
73. Mitral (bicuspid) valve.
74. Purkinje fibers.
75. Myocardium.
76. Mitral (bicuspid) valve.
77. Precordial (chest) leads.
78. Clean equipment and perform hand hygiene.
79. Superior and inferior vena cava.

80. 4th intercostal space, right sternal border.
81. Purkinje fibers.
82. Lungs (pulmonary circulation).
83. Mitral (bicuspid) valve.
84. Absent or inverted P waves, narrow QRS.
85. Respectfully document and notify provider.
86. 60–100 bpm.
87. Mitral (bicuspid) valve.
88. Sharing identifiable patient data without consent.
89. Ventricular fibrillation.
90. Pattern recognition algorithms and rhythm database.
91. Mitral (bicuspid) valve.
92. Workplace and employee safety.
93. Precordial (chest) leads.
94. Left ventricle.
95. Hand hygiene (washing hands).
96. Mitral (bicuspid) valve.
97. Hand hygiene (washing hands).
98. Workplace and employee safety.
99. Leads I, II, and III (bipolar limb leads).
100. Right atrium.