

*Strips 10.1-3 on previous  
answer key*

**Strip 10-4**

Automatic interval rate: 68

Analysis: First two beats are paced followed by a failure to capture spike, paced beat, failure to capture spike, pt beat, paced beat, failure to capture spike, and patient beat

Interpretation: Frequent failure to capture

**Strip 10-5**

Automatic interval rate: 72

Analysis: No patient or paced beats are seen

Interpretation: Failure to capture in the presence of ventricular standstill (asystole)

**Strip 10-6**

Automatic interval rate: 72

Analysis: First five beats are patient beats followed by two paced beats, two patient beats and one paced beat

Interpretation: Normal pacemaker function:  
Underlying rhythm is NSR with frequent PVCs (multifocal)

**Strip 10-7**

Automatic interval rate: 50

Analysis: The first two beats are pacemaker induced, followed by a pseudofusion beat, two patient beats, and one paced beat

Interpretation: Normal pacemaker function

**Strip 10-8**

Automatic interval rate: 72

Analysis: All beats are pacemaker-induced

Interpretation: Pacemaker rhythm

**Strip 10-9**

Automatic interval rate: 63

Analysis: The first two beats are paced beats followed by a pacing spike which occurs on time but doesn't capture, a native beat, three paced beats, and a native beat

Interpretation: Failure to capture

**Strip 10-10**

Automatic interval rate: 72

Analysis: All beats are pacemaker induced

Interpretation: Pacemaker rhythm

**Strip 10-11**

Automatic interval rate: 72

Analysis: First three beats are paced beats followed by one patient beat, a pacing spike that occurs too early, one patient beat, a paced beat that occurs too early and 3 paced beats

Interpretation: Undersensing malfunction

**Strip 10-12**

Automatic interval rate: 72

Analysis: First six beats are patient beats followed by two paced beats and two patient beats

Interpretation: Normal pacemaker function;  
underlying rhythm is atrial fibrillation

**Strip 10-13**

Automatic interval rate: 60

Analysis: All beats are pacemaker induced

Interpretation: Pacemaker rhythm

**Strip 10-14**

Automatic interval rate: 72

Analysis: The first three beats are paced beats followed by two patient beats, and two paced beats, one patient beat, and one paced beat

Interpretation: Normal pacemaker function

**Strip 10-15**

Automatic interval rate: 84

Analysis: The first three beats are paced beats; when the pacemaker is turned off the underlying rhythm is ventricular standstill. Two paced beats are seen when the pacemaker is turned back on

Interpretation: This strip shows an indication for permanent pacemaker implantation if the underlying rhythm does not resolve

**Strip 10-16**

Automatic interval rate: 72

Analysis: First two beats are paced beats followed by one patient beat, a pacing spike that occurs on time but doesn't capture, two paced beats, two patient beats and one paced beat

Interpretation: Failure to capture

**Strip 10-17**

Automatic interval rate: 72

Analysis: The first two beats are paced followed by a fusion beat (note spike in native QRS with decrease in height); two native beats; a spike that occurs too early; a native beat; a spike that occurs too early; a native beat; a paced beat that occurs too early; and a paced beat

Interpretation: Undersensing malfunction (spikes too early following 5th and 6th complex and a paced beat too early following 7th complex)

**Strip 10-18**

Automatic interval rate: 72

Analysis: The first two beats are patient beats followed by a spike that occurs on time but doesn't capture, a patient beat, and five paced beats

Interpretation: Failure to capture

**Strip 10-19**

Automatic interval rate: 60

Analysis: First four beats are paced beats followed by one patient beat (PVC) and three paced beats

Interpretation: Normal pacemaker function

**Strip 10-20**

Automatic interval rate: 72

Analysis: All beats are pacemaker induced

Interpretation: Pacemaker rhythm

**Strip 10-21**

Automatic interval rate: 72

Analysis: All beats are pacemaker induced

Interpretation: Pacemaker Rhythm

**Strip 10-22**

Automatic interval rate: Cannot be determined (only one paced beat)

Analysis: One paced beat with rhythm changing to ventricular tachycardia

Interpretation: One paced beat changing to ventricular tachycardia (torsades de pointes)

**Strip 10-23**

Automatic interval rate: 63

Analysis: The first four beats are paced beats followed by a patient beat (PVC), a pacing spike that occurs too early, a fusion beat, and a paced beat

Interpretation: Undersensing malfunction (pacing spike occurs too early following 5th complex)

**Strip 10-24**

Automatic interval rate: 72

Analysis: The first beat is paced followed by one failure to capture spike, one patient beat, one failure to capture spike, one patient beat, one paced beat, one failure to capture spike, one patient beat, one failure to capture spike, and one patient beat

Interpretation: Frequent failure to capture

**Strip 10-25**

Automatic interval rate: 63

Analysis: All beats are pacemaker induced

Interpretation: Pacemaker rhythm

**Strip 10-26**

Automatic interval rate: 72

Analysis: The first two beats are paced beats followed by one PVC, two paced beats, one pseudofusion beat, one patient beat, and two paced beats

Interpretation: Normal pacemaker function

**Strip 10-27**

Automatic interval rate: 84

Analysis: The first two beats are paced beats followed by two failure to capture spikes, one paced beat, two failure to capture spikes, two paced beats, and one failure to capture spike

Interpretation: Frequent failure to capture

**Strip 10-28**

Automatic interval rate: 72

Analysis: The first three beats are paced beats followed by one patient beat, two paced beats, one pseudofusion beat (spike superimposed on R wave), and two paced beats

Interpretation: Normal pacemaker function

**Strip 10-29**

Automatic interval rate: 72

Analysis: The first two beats are paced beats followed by three patient beats (second a PVC), and three paced beats

Interpretation: Normal pacemaker function; underlying rhythm is atrial fibrillation

**Strip 10-30**

Automatic interval rate: 65

Analysis: The first two beats are patient beats followed by three pseudofusion beats, and four patient beats

Interpretation: Normal pacemaker function

**Strip 10-31**

Automatic interval rate: Cannot be determined for sure since there aren't two consecutively paced beats present

Analysis: Strip shows six patient beats and 5 failure to capture spikes. No paced beats are seen

Interpretation: Complete failure to capture

**Strip 10-32**

Automatic interval rate: 72

Analysis: The first beat is paced followed by one patient beat, one fusion beat, two patient beats (second a PVC), one paced beat that occurs too early, two paced beats, one patient beat (PVC), one paced beat occurring too early, one patient beat (PVC), and a spike occurring too early

Interpretation: Frequent undersensing malfunction; this strip shows a sensing malfunction with capture (sixth and tenth QRS) and without capture (spike after 11th QRS)



**Strip 10-33**

Automatic interval rate: 65  
 Analysis: First two beats are paced beats followed by two patient beats, one fusion beat and two paced beats  
 Interpretation: Normal pacemaker function

**Strip 10-34**

Automatic interval rate: 72  
 Analysis: All beats are pacemaker induced  
 Interpretation: Pacemaker rhythm

\* **Strip 10-35**

Automatic interval rate: 56  
 Analysis: The first two beats are paced beats followed by one patient beat, one paced beat, one patient beat, one paced beat that occurs too early, two paced beats, and one patient beat  
 Interpretation: Undersensing malfunction

**Strip 11-1**

Rhythm: Regular  
 Rate: 107  
 P waves: Sinus P waves are present  
 PR interval: 0.12 seconds  
 QRS: 0.06 to 0.08 seconds  
 Rhythm interpretation: Sinus tachycardia

**Strip 11-2**

Rhythm: Regular  
 Rate: 58  
 P waves: Sinus P waves are present  
 PR interval: 0.12 to 0.14 seconds  
 QRS: 0.12 seconds  
 Rhythm interpretation: Sinus bradycardia with bundle branch block; ST segment depression is present

**Strip 11-3**

Rhythm: Regular atrial and ventricular rhythm  
 Rate: Atrial: 42; Ventricular: 21  
 P waves: Two sinus P waves to each QRS  
 PR interval: 0.32 to 0.36 seconds (remain constant)  
 QRS: 0.12 seconds  
 Rhythm interpretation: Second-degree AV block, Mobitz II; clinical correlation is suggested to diagnose Mobitz II when 2:1 conduction is present; ST segment elevation is present

**Strip 11-4**

Rhythm: Irregular  
 Rate: 100  
 P waves: Fibrillatory waves are present—some flutter waves are seen mixed with the fibrillatory waves  
 PR interval: Not measurable  
 QRS: 0.04 seconds  
 Rhythm interpretation: Atrial fibrillation; ST segment depression is present

**Strip 11-5**

Rhythm: Regular  
 Rate: 48  
 P waves: Hidden in QRS  
 PR interval: Not measurable  
 QRS: 0.08 seconds  
 Rhythm interpretation: Junctional rhythm; ST segment depression is present

**Strip 11-6**

Rhythm: Regular  
 Rate: 188  
 P waves: Hidden in preceding T waves  
 PR interval: Not measurable  
 QRS: 0.10 seconds  
 Rhythm interpretation: Paroxysmal atrial tachycardia

**Strip 11-7**

Automatic interval rate: 72  
 Analysis: First four beats are paced followed by two patient beats, one paced beat, and two patient beats  
 Rhythm interpretation: Normal pacemaker function

**Strip 11-8**

Rhythm: Regular atrial and ventricular rhythm  
 Rate: Atrial: 75; Ventricular: 26  
 P waves: Sinus P waves present—bear no constant relationship to QRS complexes  
 PR interval: Varies  
 QRS: 0.14–0.16 seconds  
 Rhythm interpretation: Third-degree AV block; ST segment elevation is present

**Strip 11-9**

Rhythm: Regular  
 Rate: 188  
 P waves: Not discernible  
 PR interval: Not discernible  
 QRS: 0.16 to 0.20 seconds  
 Rhythm interpretation: Ventricular tachycardia