1. Base your answer to the following question on the diagram below, which shows models of two types of earthquake waves.

Model A best represents the motion of earthquake waves called

1) S-waves (shear waves) that travel slower than P-waves (compressional waves) shown in model B
2) P-waves (compressional waves) that travel faster than S-waves (shear waves) shown in model B
3) P-waves (compressional waves) that travel slower than S-waves (shear waves) shown in model B
4) S-waves (shear waves) that travel faster than P-waves (compressional waves) shown in model B

2. A P-wave takes 5 minutes to travel from the epicenter of an earthquake to a seismic station. Approximately how many minutes will it take an S-wave to travel that same distance?

1) 15 min 2) 12 min 3) 9 min 4) 4 min

3. The epicenter of an earthquake is located 6,500 kilometers away from a seismic station. If the first S-wave arrived at this seismic station at 1:30 p.m., at what time did the first P-wave arrive?

1) 1:20 p.m. 2) 1:22 p.m. 3) 1:38 p.m. 4) 1:40 p.m.

4. The cross section of Earth below represents a P-wave moving away from an earthquake epicenter. Seismic station A is shown on Earth's surface.

At station A, the first P-wave arrives 11 minutes 40 seconds after the earthquake. How long after the first P-wave arrives will the first S-wave arrive?

1) 5 minutes 00 second 2) 8 minutes 40 seconds 3) 9 minutes 40 seconds 4) 21 minutes 20 seconds

5. What is the approximate time difference between the first P-wave and the first S-wave recorded at a seismic station located 8000 kilometers from an earthquake’s epicenter?

1) 8 minutes 40 seconds 2) 9 minutes 20 seconds 3) 11 minutes 20 seconds 4) 20 minutes 40 seconds

6. Base your answer to the following question on the map below. The map shows point X, which is the location of an earthquake epicenter, and point A, which is the location of a seismic station.

Approximately how long did the earthquake's P-wave take to arrive at the seismic station?

1) 3 min 40 sec 2) 11 min 5 sec 3) 5 min 10 sec 4) 6 min 20 sec

7. An earthquake occurs at 12:02 p.m. A seismic station records the first S-wave at 12:19 p.m. Which set of data shows the approximate arrival time of the first P-wave and the distance to the epicenter?

1) 12:19:40 p.m. and 6000 km 2) 12:11:25 p.m. and 6000 km 3) 12:11:25 p.m. and 4000 km 4) 12:19:40 p.m. and 4000 km
8. Which seismogram was recorded approximately 4,000 kilometers from an earthquake epicenter?

1)  
2)  
3)  
4)  

Base your answers to questions 9 through 11 on the diagram below, which represents seismic stations A, B, and C. The distance from each station to an earthquake’s epicenter is plotted.

9. The epicenter is closest to point

1) G  2) E  3) F  4) D

10. The P-wave of an earthquake originating 2,600 kilometers from seismic station A arrived at 5:24:45 a.m. What was the arrival time of the S-wave from the same earthquake?

1) 5:21:05 a.m.  2) 1:24:45 a.m.  
3) 9:24:05 a.m.  4) 5:28:45 a.m.

11. The difference in arrival time between the P-wave and the S-wave recorded at a seismogram at station B was 4 min. and 40 sec. What was the distance in kilometers of this earthquake epicenter from station B?

1) 3,200 km.  2) 1,200 km  
3) 4,000 km  4) 2,400 km