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[https://www.100test.com/kao\\_ti2020/126/2021\\_2022\\_GMAT\\_E8\\_80\\_83\\_E8\\_AF\\_95\\_c89\\_126904.htm](https://www.100test.com/kao_ti2020/126/2021_2022_GMAT_E8_80_83_E8_AF_95_c89_126904.htm) Passage 14A meteor stream is

composed of dust particles that have been ejected from a parent comet at a variety of velocities. These particles follow the same orbit as the parent comet, but due to their differing velocities they slowly gain on or fall behind the disintegrating comet until a shroud of dust surrounds the entire cometary orbit. Astronomers have hypothesized that a meteor stream should broaden with time as the dust particles

individual orbits are perturbed by planetary gravitational fields. A recent computer-modeling experiment tested this hypothesis by tracking the influence of planetary gravitation over a projected 5,000-year period on the positions of a group of hypothetical dust particles. In the model, the particles were randomly distributed throughout a computer simulation of the orbit of an actual meteor stream, the Geminid. The researcher found, as expected, that the computer-model stream broadened with time. Conventional theories, however, predicted that the distribution of particles would be increasingly dense toward the center of a meteor stream. Surprisingly, the computer-model meteor stream gradually came to resemble a thick-walled, hollow pipe. Whenever the Earth passes through a meteor stream, a meteor shower occurs. Moving at a little over 1,500,000 miles per day around its orbit, the Earth would take, on average, just over a day to cross the hollow, computer-model Geminid stream if the stream were 5,000 years old. Two brief periods

of peak meteor activity during the shower would be observed, one as the Earth entered the thick-walled “ pipe ” and one as it exited. There is no reason why the Earth should always pass through the stream ’ s exact center, so the time interval between the two bursts of activity would vary from one year to the next. Has the predicted twin-peaked activity been observed for the actual yearly Geminid meteor shower? The Geminid data between 1970 and 1979 show just such a bifurcation, a secondary burst of meteor activity being clearly visible at an average of 19 hours (1,200,000 miles) after the first burst. The time intervals between the bursts suggest the actual Geminid stream is about 3,000 years old. 80. The primary focus of the passage is on which of the following? (A) Comparing two scientific theories and contrasting the predictions that each would make concerning a natural phenomenon (B) Describing a new theoretical model and noting that it explains the nature of observations made of a particular natural phenomenon (C) Evaluating the results of a particular scientific experiment and suggesting further areas for research (D) Explaining how two different natural phenomena are related and demonstrating a way to measure them (B) (E) Analyzing recent data derived from observations of an actual phenomenon and constructing a model to explain the data 81. According to the passage, which of the following is an accurate statement concerning meteor streams? (A) Meteor streams and comets start out with similar orbits, but only those of meteor streams are perturbed by planetary gravitation. (B) Meteor streams grow as dust particles are attracted by the gravitational fields

of comets. (C) Meteor streams are composed of dust particles derived from comets. (D) Comets may be composed of several kinds of materials, while meteor streams consist only of large dust particles. (C)(E) Once formed, meteor streams hasten the further disintegration of comets. 82. The author states that the research described in the first paragraph was undertaken in order to (A) determine the age of an actual meteor stream (B) Identify the various structural features of meteor streams (C) explore the nature of a particularly interesting meteor stream (D) test the hypothesis that meteor streams become broader as they age (D)(E) show that a computer model could help in explaining actual astronomical data 83. It can be inferred from the passage that which of the following would most probably be observed during the Earth ' s passage through a meteor stream if the conventional theories mentioned in line 18 were (A) Meteor activity would gradually increase to a single, intense peak, and then gradually decline. (B) Meteor activity would be steady throughout the period of the meteor shower. (C) Meteor activity would rise to a peak at the beginning and at the end of the meteor shower. (D) Random bursts of very high meteor activity would be interspersed with periods of very little activity. (A)(E) In years in which the Earth passed through only the outer areas of a meteor stream, meteor activity would be absent. 84. According to the passage, why do the dust particles in a meteor stream eventually surround a comet ' s original orbit? (A) They are ejected by the comet at differing velocities. (B) Their orbits are uncontrolled by planetary gravitational fields. (C) They become part of the meteor

stream at different times. (D) Their velocity slows over time. (A)(E) Their ejection velocity is slower than that of the comet. 85. The passage suggests that which of the following is a prediction concerning meteor streams that can be derived from both the conventional theories mentioned in line 18 and the new computer-derived theory? (A) Dust particles in a meteor stream will usually be distributed evenly throughout any cross section of the stream. (B) The orbits of most meteor streams should cross the orbit of the Earth at some point and give rise to a meteor shower. (C) Over time the distribution of dust in a meteor stream will usually become denser at the outside edges of the stream than at the center. (D) Meteor showers caused by older by older meteor streams should be, on average, longer in duration than those caused by very young meteor streams. (E) The individual dust particles in older meteor streams should be, on average, smaller than those that compose younger meteor streams. 86. It can be inferred from the last paragraph of the passage that which of the following must be true of the Earth as it orbits the Sun? (A) Most meteor streams it encounters are more than 2,000 years old. (B) When passing through a meteor stream, it usually passes near to the stream's center. (C) It crosses the Geminid meteor stream once every year. (D) It usually takes over a day to cross the actual Geminid meteor stream. (E) It accounts of most of the gravitational perturbation affecting the Geminid meteor stream. 87. Which of the following is an assumption underlying the last sentence of the passage? (A) In each of the years between 1970 and 1979, the Earth took exactly 19 hours to cross the

Geminid meteor stream. (B) The comet associated with the Geminid meteor stream has totally disintegrated. (C) The Geminid meteor stream should continue to exist for at least 5,000 years. (D) The Geminid meteor stream has not broadened as rapidly as the conventional theories would have predicted. (E) (E) The computer-model Geminid meteor stream provides an accurate representation of the development of the actual Geminid stream.

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