

### Questions 21-30

*Line*  
5 Astronomers have long used direct photography to gather large amounts of information from telescopes. To do this, they have special light-sensitive coatings on glass plates, whose size depends on the type of telescope employed. Certain wide-field telescopes commonly required very large glass plates. These plates do not bend, can be measured accurately, and can preserve information over a long period of time, providing a record that an astronomer at a later time can examine. However, even though long time exposures increase the amount of light striking the plate so that very faint objects in the sky eventually show up clearly, even the most sensitive plates convert only a small percent of the photons striking them into an image. For this reason, photography cannot make very efficient use of short time exposures on a telescope. Despite this inefficiency, photography is still very useful because it works as a two-dimensional detector covering a large area at a telescope's focus. Hence, the information contained in a single photograph can be enormous, especially when the photograph is taken with wide-field telescopes.

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Today, the technology of newer radio and x-ray telescopes has allowed astronomers to view images otherwise invisible to the eye, and direct photography is now used less often to gather images. Today's astronomers can study an enhanced view of a telescope's focus on a television monitor; and in most cases, the data can later be converted by computer into digital form. This procedure, called image processing, plays a central role in astronomy today. Using false colors, the computer can display images of information otherwise undetectable to the unaided eye. These colors are false in the sense that they are not the actual colors of the object in the visual range of the spectrum. Rather, they are codes to a specific property, such as the x-ray emissions from stars.

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21. What is the main topic of the passage?

- (A) The use of false colors in image processing
- (B) The use of wide-field telescopes in astronomy
- (C) New astronomical theories
- (D) Methods used by astronomers to obtain information

22. The word "employed" in line 3 is closest in meaning to

- (A) measured
- (B) inspected
- (C) used
- (D) purchased

23. The word "efficient" in line 10 is closest in meaning to

- (A) productive
- (B) frequent
- (C) objective
- (D) visible

24. Which of the following is NOT mentioned as an advantage of glass-plate photographs?

- (A) They can be measured accurately.
- (B) They can capture the images of faint objects.
- (C) They can be stored for a long time.
- (D) They can be processed quickly.

25. Astronomers most probably

- use direct photography less frequently today than in the past because
- (A) glass plates are no longer available
- (B) only a small amount of information is contained in a single photograph
- (C) alternate ways of observing images have been developed
- (D) photographic data deteriorates quickly

26. What is image processing?

- (A) The process of light waves striking a glass plate
- (B) A way to produce images more quickly
- (C) A reevaluation of old photographs
- (D) A way computers can present data for analysis

27. The word "undetectable" in line 23 is closest in meaning to

- (A) immense
- (B) inferior
- (C) imperceptible
- (D) intolerable