Questions 21-30

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.

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.

LIVEWORKSHEETS

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

LIVEWORKSHEETS

28. Why do computer-generated images use false colors?

(A) The real objects are too bright to look at.

(B) The computer screens have a limited range of colors.

(C) The properties represented in the image are not otherwise visible.

(D) The colors are used to convert black-and-white photographs.

29. Why does the author mention "x-ray emissions" in line 25?

(A) To discuss the measurement of energy flow

(B) To emphasize the precision of direct photography

(C) To provide an example of what false colors represent

(D) To compare the properties of color and movement

30. Where in the passage does the author mention a disadvantage of photography?

(A) Lines 1-3

(B) Lines 7-11

(C) Lines 18-21

(D) Lines 24-25

LIVEWORKSHEETS

Questions 31-39

The artistic movement known as Impressionism was first identified in 1874 when a group of artists, dissatisfied with the reception of their works by the academic art establishment of their period, chose to hold a separate exhibition of their paintings.

Despite obvious differences in style, all of these painters were connected by an ability to catch a moment and preserve it on canvas, and in their belief in the importance of that moment. They readily accepted and made use of the technological advances available to them, and in the end became recognized as proponents of one of the most significant movements in the history of art, a movement that produced an aesthetic revolution in art.

Several technological breakthroughs were responsible, to some degree, for the creation and execution of the new Impressionist style. One of these was the invention of a new brush that gave artists greater control. Another useful invention was the collapsible tin tube. This easily reclosed container preserved the oil paint in a stable condition without altering the color. It was a great improvement over animal bladders, which had been used for centuries to hold oil paint. The new tube was portable and made it possible for artists to work outside. This freedom made it possible for Impressionist paintings to "capture the moment," giving them a feeling of immediacy.

Another innovation was color. Nineteenth-century chemists had created a new palette of colors, derived from cola tar and other substances. These were first used by textile manufacturers and then adopted by artists. They included some of the brighter colors – new shades of blue, green, and yellow, whose tones gave the Impressionist paintings their characteristic shimmering quality.

LIVEWORKSHEETS

31. What did the group of Impressionist artists do in 1874?
(A) They radically changed their style of painting.
(B) They held their own exhibition.
(C) They adopted new techniques and technologies.
(D) They refused to paint anything that year.

32. The word "it" in line 6 refers to
(A) style
(B) moment
(C) ability
(D) canvas

33. The word "readily" in line 7 is closest in meaning to
(A) purposely
(B) cautiously
(C) cleverly
(D) eagerly

34. According to the passage, Impressionism is regarded historically as
(A) a significant, revolutionary movement
(B) an innovative yet minor style
(C) an unenlightened, radical phase
(D) a traditional form of nineteenth-century painting

35. In line 15 the word "It" refers to
(A) container
(B) condition
(C) oil paint
(D) color

36. Which of the following words does NOT refer to something that holds paint?
(A) Bladder
(B) Tube
(C) Condition
(D) Container

37. What contribution did chemists make to the Impressionist movement?
(A) New textiles
(B) Better canvases
(C) Additional colors
(D) Tin tubes

38. It can be inferred that Impressionist paintings differed from other nineteenth-century paintings in terms of which of the following?
(A) The size of the canvas
(B) The brightness of the colors
(C) The value of the painting
(D) The talent of the artists

LIVEWORKSHEETS

39. Where in the passage does the author mention two new technologies available to artists in the nineteenth century?

(A) First paragraph
(B) Second paragraph
(C) Third paragraph
(D) Fourth paragraph

LIVEWORKSHEETS