

CODE 2
READING PAPER
Time permitted: 60 minutes
Number of questions: 40

Directions: In this section you will read *FOUR* different passages. Each one is followed by 10 questions about it. For questions 1-40, you are to choose the best answer A, B, C or, to each question. Then, on your answer sheet, find the number of the question and fill in the space that corresponds to the letter of the answer you have chosen. Answer all questions following a passage on the basis of what is stated or implied in that passage.

You have 60 minutes to answer all the questions, including the time to transfer your answers to the answer sheet.

PASSAGE 1 – Questions 1-10

Beads were probably the first durable ornaments humans possessed, and the intimate relationship they had with their owners is reflected in the fact that beads are among the most common items found in ancient archaeological sites. In the past, as today, men, women, and children **adorned** themselves with beads. In some cultures still, certain beads are often worn from birth until death, and then are buried with their owners for the afterlife. Abrasion due to daily wear alters the surface features of beads, and if they are buried for long, the effects of corrosion can further change their appearance. Thus, interest is imparted to the bead both by use and the effects of time.

Besides their wearability, either as jewelry or incorporated into articles of **attire**, beads possess the desirable characteristics of every collectible: they are durable, portable, available in infinite variety, and often valuable in their original cultural context as well as in today's market. Pleasing to look at and touch, beads come in shapes, colors, and materials that almost compel one to handle them and to sort them.

Beads are miniature bundles of secrets waiting to be revealed: their history, manufacture, cultural context, economic role, and ornamental use are all points of information one hopes to **unravel**. Even the most **mundane** beads may have traveled great distances and been exposed to many human experiences. The bead researcher must gather information from many diverse fields. In addition to having to be a generalist while specializing in what may seem to be a narrow field, the researcher is faced with the problem of primary materials that have little or no documentation. Many ancient beads that are of ethnographic interest have often been separated from their original cultural context.

The special attractions of beads contribute to the uniqueness of bead research. While often regarded as the "small change of civilizations," beads are a part of every culture, and they can often be used to date archaeological sites and to designate the degree of mercantile, technological, and cultural sophistication.

1. What is the main subject of the passage?
 - A. Materials used in making beads
 - B. How beads are made
 - C. The reasons for studying beads
 - D. Different types of beads
2. The word "adorned" in paragraph 1 is closest in meaning to
 - A. protected
 - B. decorated
 - C. purchased
 - D. enjoyed
3. The word "attire" in paragraph 2 is closest in meaning to
 - A. ritual
 - B. importance
 - C. clothing
 - D. history
4. All of the following are given as characteristics of collectible objects EXCEPT
 - A. durability
 - B. portability
 - C. value
 - D. scarcity

5. According to the passage, all of the following are factors that make people want to touch beads EXCEPT the
 - A. shape
 - B. color
 - C. material
 - D. odor
6. The word "unravel" in paragraph 3 is closest in meaning to
 - A. communicate
 - B. transport
 - C. improve
 - D. discover
7. The word "mundane" in paragraph 3 is closest in meaning to
 - A. carved
 - B. beautiful
 - C. ordinary
 - D. heavy
8. It is difficult to trace the history of certain ancient beads because they
 - A. are small in size
 - B. have been buried underground
 - C. have been moved from their original locations
 - D. are frequently lost
9. Knowledge of the history of some beads may be useful in the studies done by which of the following?
 - A. Anthropologist
 - B. Agricultural experts
 - C. Medical researchers
 - D. Economists
10. Where in the passage does the author describe why the appearance beads may change?
 - A. Lines 2-4
 - B. Lines 5-8
 - C. Lines 11-13
 - D. Lines 19-21

PASSAGE 2 – Questions 11-20

The word laser was **coined** as an acronym for Light Amplification by the Stimulated Emission of Radiation. Ordinary light, from the Sun or a light bulb, is emitted spontaneously, when atoms or molecules get rid of excess energy by themselves, without any outside **intervention**. Stimulated emission is different because it occurs when an atom or molecule holding onto excess energy has been stimulated to emit it as light.

Albert Einstein was the first to suggest the existence of stimulated emission in a paper published in 1917. However, for many years physicists thought that atoms and molecules always were much more likely to emit light spontaneously and that stimulated emission thus always would be much weaker. It was not until after the Second World War that physicists began trying to make stimulated emission dominate. They sought ways by which one atom or molecule could stimulate many others to emit light, amplifying it to much higher powers.

The first to succeed was Charles H. Townes, then at Columbia University in New York. Instead of working with light, however, he worked with microwaves, which have a much longer wavelength, and built a device he called a "maser," for Microwave Amplification by the Stimulated Emission of Radiation. Although he thought of the key idea in 1951, the first maser was not completed until a couple of years later. Before long, many other physicists were building masers and trying to discover how to produce stimulated emission at even shorter wavelengths.

The key concepts **emerged** about 1957. Townes and Arthur Schawlow, then at Bell Telephone Laboratories, wrote a long paper **outlining** the conditions needed to amplify stimulated emission of visible light waves. At about the same time, similar ideas crystallized in the mind of Gordon Gould, then a 37-year-old graduate student at Columbia, who wrote them down in a series of notebooks. Townes and Schawlow published their ideas in a scientific journal, *physical Review Letters*, but Gould filed a patent application. Three decades later, people still argue about who deserves the credit for the concept of the laser.

11. The word "coined" in paragraph 1 could best be replaced by
- A. created
 - B. mentioned
 - C. understood
 - D. discovered
12. The word "intervention" in paragraph 1 can best be replaced by
- A. need
 - B. device
 - C. influence
 - D. source
13. The word "it" in paragraph 1 refers to
- A. light bulb
 - B. energy
 - C. molecule
 - D. atom
14. Which of the following statements best describes a laser?
- A. A device for stimulating atoms and molecules to emit light
 - B. An atom in a high-energy state
 - C. A technique for destroying atoms or molecules
 - D. An instrument for measuring light waves
15. Why was Towne's early work with stimulated emission done with microwaves? A. He was not concerned with light amplification.
- B. It was easier to work with longer wavelengths.
 - C. His partner Schawlow had already begun work on the laser.
 - D. The laser had already been developed.
16. In his research at Columbia University, Charles Townes worked with all of the following EXCEPT
- A. stimulated emission
 - B. microwaves
 - C. light amplification
 - D. a maser
17. In approximately what year was the first maser built?
- A. 1917
 - B. 1951
 - C. 1953
 - D. 1957
18. The word "emerged" in paragraph 4 is closest in meaning to
- A. increased
 - B. concluded
 - C. succeeded
 - D. appeared
19. The word "outlining" in paragraph 4 is closest in meaning to
- A. assigning
 - B. studying
 - C. checking
 - D. summarizing
20. Why do people still argue about who deserves the credit for the concept of the laser?
- A. The researchers' notebooks were lost.
 - B. Several people were developing the idea at the same time.
 - C. No one claimed credit for the development until recently.
 - D. The work is still incomplete.

PASSAGE 3 – Questions 21-30

In the United States in the early 1800's, individual state governments had more **effect** on the economy than did the federal government. States chartered manufacturing, banking, mining, and transportation firms and participated in the construction of various internal improvements such as canals, turnpikes, and railroads. The states encouraged internal improvements in two **distinct** ways: first, by actually establishing state companies to build such improvements; second, by providing part of the capital for mixed public-private companies setting out to make a profit.

In the early nineteenth century, state governments also engaged in a surprisingly large amount of direct regulatory activity, including extensive licensing and inspection programs. Licensing targets reflected both similarities in and differences between the economy of the nineteenth century and that of today: in the nineteenth century, state regulation through licensing fell especially on peddlers, innkeepers, and retail merchants of various kinds. The perishable commodities of trade generally came under state inspection, and such important frontier staples as lumber and gunpowder were also subject to state control. Finally, state governments experimented with direct labor and business regulation designed to help the individual laborer or consumer, including **setting** maximum limits on hours of work and restrictions on price-fixing by businesses.

Although the states dominated economic activity during this period, the federal government was not inactive. Its goals were the facilitation of western settlement and the development of native industries. Toward these ends the federal government pursued several courses of action. It established a national bank to stabilize banking activities in the country and, in part, to provide a supply of relatively easy money to the frontier, where it was greatly needed for settlement. It permitted access to public western lands on increasingly easy terms, culminating in the Homestead Act of 1862, by which title to land could be claimed on the basis of residence alone. Finally, it set up a system of tariffs that was basically protectionist in effect, although maneuvering for position by various regional interests produced frequent changes in tariff rates throughout the nineteenth century.

21. What does the passage mainly discuss?
- A. States' rights versus federal rights
 - B. The participation of state governments in railroad, canal, and turnpike construction
 - C. The roles of state and federal governments in the economy of the nineteenth century
 - D. Regulatory activity by state governments
22. The word "effect" in paragraph 1 is closest in meaning to
- A. value
 - B. argument
 - C. influence
 - D. restraint
23. All of the following are mentioned in the passage as areas that involved state governments in the nineteenth century EXCEPT
- A. mining
 - B. banking
 - C. manufacturing
 - D. higher education
24. The word "distinct" in paragraph 1 is closest in meaning to
- A. separate
 - B. innovative
 - C. alarming
 - D. provocative
25. It can be inferred from the first paragraph that in the nineteenth century canals and railroads were
- A. built with money that came from the federal government
 - B. much more expensive to build than they had been previously
 - C. built predominantly in the western part of the country
 - D. sometimes built in part by state companies
26. The regulatory activities of state governments included all of the following EXCEPT
- A. licensing of retail merchants
 - B. inspecting materials used in turnpike maintenance
 - C. imposing limits on price fixing
 - D. control of lumber

27. The word "setting" in paragraph 2 is closest in meaning to
- A. discussing
 - B. analyzing
 - C. establishing
 - D. avoiding
28. The word "ends" in paragraph 2 is closest in meaning to
- A. benefits
 - B. decisions
 - C. services
 - D. goals
29. According to the passage, which of the following is true of the Homestead Act of 1862?
- A. It made it increasingly possible for settlers to obtain land in the West.
 - B. It was a law first passed by state governments in the West.
 - C. It increased the money supply in the West.
 - D. It established tariffs in a number of regions.
30. Which of the following activities was the responsibility of the federal government in the nineteenth century?
- A. Control of the manufacture of gunpowder
 - B. Determining the conditions under which individuals worked
 - C. Regulation of the supply of money
 - D. Inspection of new homes built on western lands

PASSAGE 4 – Questions 31-40

Life originated in the early seas less than a billion years after the Earth was formed. Yet another three billion years were to pass before the first plants and animals appeared on the continents. Life's transition from the sea to the land was perhaps as much of an evolutionary challenge as was the genesis of life.

What forms of life were able to make such a **drastic** change in lifestyle? The traditional view of the first terrestrial organisms is based on megafossils — relatively large specimens of essentially whole plants and animals. Vascular plants, related to modern seed plants and ferns, left the first comprehensive megafossil record. Because of this, it has been commonly assumed that the sequence of terrestrialization reflected the evolution of modern terrestrial ecosystems. In this view, primitive vascular plants first colonized the margins of continental waters, followed by animals that fed on the plants, and lastly by animals that preyed on the plant-eaters. Moreover, the megafossils suggest that terrestrial life appeared and diversified explosively near the boundary between the Silurian and the Devonian periods, a little more than 400 million years ago.

Recently, however, paleontologists have been taking a closer look at the sediments below this Silurian-Devonian geological boundary. It turns out that some fossils can be **extracted** from these sediments by putting the rocks in an acid bath. The technique has uncovered new evidence from sediments that were deposited near the shores of the ancient oceans — plant microfossils and microscopic pieces of small animals. In many **instances** the specimens are less than one-tenth of a millimeter in diameter. Although they were **entombed** in the rocks for hundreds of millions of years, many of the fossils consist of the organic remains of the organism.

These newly discovered fossils have not only revealed the existence of previously unknown organisms, but have also pushed back these dates for the invasion of land by multicellular organisms. Our views about the nature of the early plant and animal communities are now being revised. And with those revisions come new speculations about the first terrestrial life-forms.

31. The word "drastic" in line 5 is closest in meaning to
- A. widespread
 - B. radical
 - C. progressive
 - D. risky
32. According to the theory that the author calls "the traditional view," what was the first form of life to appear on land?
- A. Bacteria
 - B. Meat-eating animals
 - C. Plant-eating animals
 - D. Vascular plants

33. According to the passage, what happened about 400 million years ago?
- A. Many terrestrial life-forms died out.
 - B. New life-forms on land developed at a rapid rate.
 - C. The megafossils were destroyed by floods.
 - D. Life began to develop in the ancient seas.
34. The word "extracted" in paragraph 3 is closest in meaning to
- A. located
 - B. preserved
 - C. removed
 - D. studied
35. What can be inferred from the passage about the fossils mentioned in lines 16-19?
- A. They have not been helpful in understanding the evolution of terrestrial life.
 - B. They were found in approximately the same numbers as vascular plant fossils.
 - C. They are older than the megafossils.
 - D. They consist of modern life-forms.
36. The word "instances" in paragraph 3 is closest in meaning to
- A. methods
 - B. processes
 - C. cases
 - D. reasons
37. The word "they" in paragraph 3 refers to
- A. rocks
 - B. shores
 - C. oceans
 - D. specimens
38. The word "entombed" in paragraph 3 is closest in meaning to
- A. crushed
 - B. trapped
 - C. produced
 - D. excavated
39. Which of the following resulted from the discovery of microscopic fossils?
- A. The time estimate for the first appearance of terrestrial life-forms was revised.
 - B. Old techniques for analyzing fossils were found to have new uses.
 - C. The origins of primitive sea life were explained.
 - D. Assumptions about the locations of ancient seas were changed.
40. With which of the following conclusions would the author probably agree?
- A. The evolution of terrestrial life was as complicated as the origin of life itself.
 - B. The discovery of microfossils supports the traditional view of how terrestrial life evolved.
 - C. New species have appeared at the same rate over the course of the last 400 million years.
 - D. The technology used by paleontologists is too primitive to make accurate determinations about ages of fossils.