

Bright Stars High School

leeja

THIS IS AN EXAM (ANSWERS)

SET

C

Questions: 20

Duration: 45min

Section A: General Knowledge

This section covers a broad range of topics including history, geography, literature, and science. Answer all 10 questions.

1. Which of the following is not a primary color in the additive color model (RGB)?

A. Red
B. Blue
C. **Yellow ***
D. Green

Explanation:

The additive primary colors are Red, Green, and Blue (RGB), which are used in screens. Yellow is a primary color in the subtractive (CMY) model used in printing.

2. What is the capital city of Australia?

A. Melbourne
B. Sydney
C. Perth
D. **Canberra ***

Explanation:

While Sydney and Melbourne are larger and more famous, Canberra was chosen as the capital city in 1908 as a compromise between the two rival cities.

3. Consider the following statements about the planet Jupiter:

I:

It is the largest planet in our Solar System.

II:

It is a terrestrial planet, like Earth and Mars.

III:

The Great Red Spot is a massive, long-lasting storm in its atmosphere.

Which of the above statements is/are correct?

A. I, II, and III
B. **I and III only ***
C. I and II only
D. I only

Explanation:

Jupiter is the largest planet (I) and has the Great Red Spot storm (III). However, it is a gas giant, not a terrestrial planet (II is incorrect).

4. In what year did the Titanic sink?

A. 1921
B. **1912 ***
C. 1918
D. 1905

Explanation:

The RMS Titanic sank in the early hours of April 15, 1912, after striking an iceberg during its maiden voyage.

5. Read the following passage about the Renaissance and answer the question below.

The Renaissance was a fervent period of European cultural, artistic, political, and economic 'rebirth' following the Middle Ages. Generally described as taking place from the 14th century to the 17th century, the Renaissance promoted the rediscovery of classical philosophy, literature, and art. One of the major catalysts for this movement was the invention of the printing press around 1440 by Johannes Gutenberg, which allowed for the wide dissemination of ideas and knowledge at an unprecedented scale.

According to the passage, what was a key driver of the Renaissance?

A. The discovery of new continents.
B. **The invention of the printing press. ***
C. The decline of the Roman Empire.
D. A series of major military victories.

Explanation:

The passage explicitly states that the invention of the printing press was a 'major catalyst' for the Renaissance by enabling the wide dissemination of ideas.

6. The ancient city of Rome was built on how many hills?

A. Nine
B. Five
C. Three
D. **Seven ***

Explanation:

Rome is famously known as the 'City of Seven Hills'. These hills are Aventine, Caelian, Capitoline, Esquiline, Palatine, Quirinal, and Viminal.

7. Match the author in Column A with their famous work in Column B.

- | | |
|------------------------|----------------------------|
| 1. George Orwell | - A. The Great Gatsby |
| 2. J.R.R. Tolkien | - B. To Kill a Mockingbird |
| 3. F. Scott Fitzgerald | - C. 1984 |
| 4. Harper Lee | - D. The Lord of the Rings |

- | | |
|--------------------------------|-----------------------|
| A. 1-A, 2-B, 3-C, 4-D | B. 1-C, 2-A, 3-D, 4-B |
| C. 1-C, 2-D, 3-A, 4-B * | D. 1-D, 2-C, 3-B, 4-A |

Explanation:

George Orwell wrote '1984', J.R.R. Tolkien wrote 'The Lord of the Rings', F. Scott Fitzgerald wrote 'The Great Gatsby', and Harper Lee wrote 'To Kill a Mockingbird'.

8. Which artist is famous for painting the Mona Lisa?

- | | |
|---------------------|-------------------------------|
| A. Pablo Picasso | B. Michelangelo |
| C. Vincent van Gogh | D. Leonardo da Vinci * |

Explanation:

Leonardo da Vinci, an Italian polymath of the High Renaissance, painted the Mona Lisa in the early 16th century.

9. Evaluate the following statement:

Statement:

The Great Wall of China is the only man-made structure visible from the Moon with the naked eye.

Based on the statement, is the claim true or false?

- | | |
|---------|-------------------|
| A. True | B. False * |
|---------|-------------------|

Explanation:

This is a common misconception. No man-made structures are visible from the Moon with the naked eye. Even from Low Earth Orbit, the Great Wall is barely visible.

10. What is the chemical symbol for the element Gold?

- | | |
|----------------|-------|
| A. Au * | B. Fe |
| C. Pb | D. Ag |

Explanation:

The symbol Au comes from the Latin word for gold, 'aurum'. Ag is Silver, Pb is Lead, and Fe is Iron.

Section B: Science and Technology

This section tests your knowledge of fundamental and modern concepts in science and technology.

11. Analyze the following statement about physics.

- | |
|---|
| A. The statement is incorrect because it is Newton's Second Law. |
| B. The statement is incorrect because the law applies to objects in motion too. |
| C. The statement is incorrect because the force must be unbalanced. * |
| D. The statement is correct. |

Explanation:

Newton's First Law states an object at rest stays at rest and an object in motion stays in motion with the same speed and in the same direction unless acted upon by an unbalanced force. A balanced force would result in no change in motion.

12. From the list below, identify the item that is NOT a type of web browser.

Google Chrome
Mozilla Firefox
Microsoft Excel
Apple Safari

- | | |
|--------------------|-----------------------------|
| A. Mozilla Firefox | B. Apple Safari |
| C. Google Chrome | D. Microsoft Excel * |

Explanation:

Microsoft Excel is a spreadsheet application, not a web browser used for accessing the internet. The others are all well-known web browsers.

13. Which layer of the OSI model is responsible for routing and forwarding IP packets?

- | |
|-------------------------------------|
| A. Layer 4 (Transport Layer) |
| B. Layer 2 (Data Link Layer) |
| C. Layer 1 (Physical Layer) |
| D. Layer 3 (Network Layer) * |

Explanation:

The Network Layer (Layer 3) handles the routing of data packets from the source to the destination across different networks, a process known as routing.

14. What does the acronym 'HTTP' stand for?

- A. High-Tech Transfer Protocol
- B. HyperText Transmission Process
- C. **HyperText Transfer Protocol ***
- D. Hyperlink Text Transfer Protocol

Explanation:

HTTP is the foundation of data communication for the World Wide Web, defining how messages are formatted and transmitted.

15. Which planet is known as the 'Red Planet'?

- A. Saturn
- B. Venus
- C. **Mars ***
- D. Jupiter

Explanation:

Mars is called the Red Planet because of the iron oxide (rust) on its surface, which gives it a reddish appearance.

16. Which of the following is a renewable energy source?

- A. Coal
- B. Nuclear
- C. **Solar ***
- D. Natural Gas

Explanation:

Solar energy is derived from the sun's radiation and is considered renewable because the sun is an inexhaustible source. Natural gas and coal are fossil fuels, and nuclear energy relies on uranium, which are all finite resources.

17. Match the technology company in Column A with its primary cloud computing platform in Column B.

- | | |
|--------------|----------------------------------|
| 1. Amazon | - A. Azure |
| 2. Microsoft | - B. Google Cloud Platform (GCP) |
| 3. Google | - C. Amazon Web Services (AWS) |

- A. 1-B, 2-A, 3-C
- B. **1-C, 2-A, 3-B ***
- C. 1-A, 2-C, 3-B
- D. 1-C, 2-B, 3-A

Explanation:

AWS is Amazon's cloud platform, Azure is Microsoft's, and GCP is Google's.

18. What is considered the 'powerhouse' of the cell?

- A. **Mitochondrion ***
- B. Cell Membrane
- C. Ribosome
- D. Nucleus

Explanation:

Mitochondria generate most of the cell's supply of adenosine triphosphate (ATP), used as a source of chemical energy, hence the nickname 'powerhouse'.

19. In computer science, which data structure operates on a 'First-In, First-Out' (FIFO) principle?

- A. Array
- B. Stack
- C. **Queue ***
- D. Tree

Explanation:

A queue works like a line of people; the first person to get in line is the first person to be served (FIFO). A stack operates on a 'Last-In, First-Out' (LIFO) principle.

20. Read the following paragraph and answer the question.

A blockchain is a decentralized, distributed, and oftentimes public, digital ledger consisting of records called blocks that is used to record transactions across many computers so that any involved block cannot be altered retroactively, without the alteration of all subsequent blocks. This allows the participants to verify and audit transactions independently and relatively inexpensively. A blockchain database is managed autonomously using a peer-to-peer network and a distributed timestamping server.

What is the primary function of a blockchain as described in the passage?

- A. To act as a centralized authority for financial institutions.
- B. **To provide a secure and immutable record of transactions. ***
- C. To store large video files.
- D. To speed up computer processing.

Explanation:

The passage highlights that blocks cannot be altered retroactively, allowing participants to securely verify and audit transactions, which points to its function as a secure and immutable ledger.

* * * * **END** * * * *