

# Bright Stars High School

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## THIS IS AN EXAM (ANSWERS)

SET

**D**

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. 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.

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

A. Ag

B. Au \*

C. Pb

D. Fe

**Explanation:**

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

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

A. Yellow \*

B. Green

C. Blue

D. Red

**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.

4. What is the capital city of Australia?

A. Perth

B. Sydney

C. Canberra \*

D. Melbourne

**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.

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 invention of the printing press. \*

B. A series of major military victories.

C. The decline of the Roman Empire.

D. The discovery of new continents.

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

**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).

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

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

**Explanation:**

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

8. 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-D, 2-C, 3-B, 4-A          | B. 1-C, 2-A, 3-D, 4-B      |
| C. <b>1-C, 2-D, 3-A, 4-B *</b> | D. 1-A, 2-B, 3-C, 4-D      |

**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'.

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

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

**Explanation:**

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

10. In what year did the Titanic sink?

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

**Explanation:**

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

## Section B: Science and Technology

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

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

**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.

12. Analyze the following statement about physics.

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

**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.

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

Google Chrome  
Mozilla Firefox  
Microsoft Excel  
Apple Safari

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

**Explanation:**

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

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

**Explanation:**

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

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

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

**Explanation:**

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

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

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

**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.

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

- A. Layer 1 (Physical Layer)
- B. Layer 2 (Data Link Layer)
- C. Layer 4 (Transport 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.

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

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

**Explanation:**

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

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

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

**Explanation:**

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

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

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

**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.

\* \* \* \* **END** \* \* \* \*