

Cosmic Cryptography Facts

Cryptography · Answer Key · 25 Questions

1. What is the primary method used by NASA to ensure that data sent to deep space probes is not intercepted or altered by unauthorized parties?

- A) Analog radio signals
- B) Public key encryption**
- C) Morse code
- D) Smoke signals

2. When communicating with the Voyager probes, what simple form of 'encryption' was used by assigning specific codes to represent binary instructions?

- A) A Caesar cipher
- B) Binary encoding**
- C) Hieroglyphics
- D) Pigpen cipher

3. Which planet is home to the 'Great Red Spot', a feature often used as a metaphor for data 'hiding' in plain sight?

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

4. What is the term for the 'key' required to decipher the digital signals received from the James Webb Space Telescope?

- A) Decryption key**
- B) Master compass
- C) Physical lever
- D) Digital hammer

5. What celestial object serves as the 'universal standard' for setting the clocks used to timestamp secure digital transmissions?

- A) The Moon
- B) The Sun
- C) Pulsars**
- D) Asteroids

6. In satellite communication, what is the 'ciphertext' equivalent of a signal that has been encoded for transmission?

A) Raw audio

B) Encoded data stream

C) Clear text

D) Heat signature

7. Which space agency developed the 'Deep Space Network' to manage secure, encrypted links to interplanetary missions?

A) ESA

B) NASA

C) JAXA

D) ISRO

8. What do we call the 'scrambling' process that turns readable information into an unreadable format for secure transmission to Mars rovers?

A) Encryption

B) Decoding

C) Printing

D) Scanning

9. Before modern digital security, what did ancient astronomers use to 'encrypt' their secret charts of the stars?

A) Mathematical symbols

B) Fingerprints

C) Wax seals

D) Colored ribbons

10. Which galaxy's distance from Earth makes the 'time delay' for data encryption verification over 2.5 million years?

A) Andromeda

B) Milky Way

C) Triangulum

D) Sombrero

11. What is the 'cleartext' equivalent in space travel, representing the original, unencrypted message sent from mission control?

A) Plain data

B) Noise

C) Radiation

D) Static

12. What is the role of a 'hash' function in validating the integrity of data sent from a space station?

- A) To destroy the file
- B) To verify data consistency**
- C) To slow down speed
- D) To translate languages

13. Which planet has a name that was once 'encoded' in the ancient Roman pantheon, which modern cryptographic systems often reference for naming conventions?

- A) Mercury**
- B) Earth
- C) Pluto
- D) Neptune

14. What is the primary concern for cryptographic data transmitted through the 'radiation belts' surrounding Earth?

- A) Data corruption**
- B) Theft of hardware
- C) Language barrier
- D) Signal freezing

15. How do we ensure that a command sent to a space telescope is authentic and not a 'replay' of an old command?

- A) Using digital signatures**
- B) Handwritten notes
- C) Color-coding
- D) Adding more volume

16. What is the 'alphabet' used by computers on the International Space Station to form the basis of all encrypted communication?

- A) Binary**
- B) Latin
- C) Sanskrit
- D) Cuneiform

17. Which moon of Saturn is often cited as a target for life, requiring 'secure' data protocols for future robotic landing missions?

- A) Titan**
- B) Phobos
- C) Deimos
- D) Europa

18. What type of 'key' is publicly shared to allow satellites to encrypt outgoing data for ground stations?

A) Public key

- B) Secret key
- C) House key
- D) Master key

19. What happens to an encrypted signal if it travels through a high-gravity field near a black hole?

A) It undergoes gravitational redshift

- B) It becomes clear
- C) It disappears instantly
- D) It encrypts itself

20. What is the standard unit of 'information' used to measure the strength of an encryption key in deep space communications?

A) Bits

- B) Litres
- C) Grams
- D) Metres

21. Which tool is used to 'decrypt' the complex data sent back from the Hubble Space Telescope?

A) High-powered computers

- B) Telescope lenses
- C) Paper maps
- D) Magnifying glasses

22. What is the 'noise' that often interferes with sensitive encrypted signals in outer space?

A) Cosmic background radiation

- B) Solar wind
- C) Dark matter
- D) Meteor dust

23. Why is the 'Public Key' system considered vital for communication with distant space probes?

A) It allows secure contact without sharing private keys

- B) It is faster than light
- C) It requires no power
- D) It uses satellites only

24. What is the primary goal of securing data transmissions from the James Webb Space Telescope?

A) Protecting scientific discoveries

- B) Blocking alien signals
- C) Saving battery life
- D) Increasing signal speed

25. What simple logic determines if a signal received from a planet is 'valid' or 'garbage'?

A) Checksum verification

- B) Length guessing
- C) Color matching
- D) Sound checking