Space Data Science

Data Science · Practice Test · 20 Questions

1. What astronomical data measurement records an object's brightness change over time?

A) Light curve
B) Spectral shift
C) Gravitational lens
D) Parallax angle

2. Which method do data scientists use on Kepler telescope data to detect exoplanets passing in front of stars?

A) Transit photometry
B) Carbon dating
C) Sonar pinging
D) Thermal imaging

3. Why were physical hard drives flown by airplane to process the first image of a black hole by the Event Horizon Telescope?

A) The data volume was too massive for internet transfer
B) Internet access is illegal at observatories
C) Hard drives prevent solar radiation corruption
D) Satellite networks do not transmit digital files

4. Which machine learning branch is commonly used to automatically categorize galaxy shapes in space images?

A) Computer vision
B) Natural language processing
C) Reinforcement learning
D) Robotic process automation

5. What type of signals does the SETI project analyze to search for potential extraterrestrial intelligence?

A) Radio signals
B) Seismic waves
C) Ocean currents
D) Gamma ray bursts

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6. The ESA Gaia space observatory collects data to create a high-precision 3D map of which structure?

A) The Milky Way galaxy
B) The surface of Mars
C) Jupiter's moons
D) The rings of Saturn

7. What physical property of a star can data scientists determine by analyzing its optical light spectrum?

A) Chemical composition
B) Surface texture
C) Liquid volume
D) Core temperature gradient

8. Which facility network does NASA use to receive data transmitted from deep space probes like James Webb and Voyager?

A) Deep Space Network
B) Global Positioning System
C) Hubble Link Network
D) Starlink Constellation

9. In astronomical data, what does a measured 'redshift' in light from a distant galaxy indicate?

A) The galaxy is moving away from Earth
B) The galaxy is cooling down rapidly
C) The galaxy is shrinking in mass
D) The galaxy is colliding with Earth

10. Which observatories generated data that allowed data scientists to confirm the existence of gravitational waves in 2015?

A) LIGO and Virgo
B) Hubble and Spitzer
C) Keck and Subaru
D) Arecibo and FAST

11. What fast-rotating neutron stars emit periodic pulses of radiation that act as precise cosmic clocks for timing data?

A) Pulsars
B) Red giants
C) White dwarfs
D) Brown dwarfs

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12. Which satellite provided detailed spatial mapping data of the Cosmic Microwave Background radiation left from the early universe?

A) Planck observatory
B) International Space Station
C) Landsat 8
D) Voyager 1

13. What public crowdsourced science project allowed volunteers and algorithms to classify millions of galaxy images?

A) Galaxy Zoo
B) Planet Nine
C) SpaceInvaders
D) CosmoNet

14. What statistical Doppler technique analyzes star velocity data to detect wobbles caused by orbiting exoplanets?

A) Radial velocity method
B) Direct imaging method
C) Astrotuning method
D) Astrometric shift method

15. What imaging technique combines data from multiple photo exposures of space to reduce background noise?

A) Image stacking
B) Lossy compression
C) Pixel stretch
D) Color inversion

16. Where is the Vera C. Rubin Observatory located, designed to produce terabytes of nightly sky data?

A) Chile
B) Australia
C) Norway
D) Japan

17. What solar observatory continuously transmits gigabytes of high-resolution images of the Sun back to Earth every day?

A) Solar Dynamics Observatory (SDO)
B) Cassini-Huygens
C) Juno Spacecraft
D) New Horizons

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18. What primary repository stores raw planetary scientific data collected by NASA missions for public use?

A) Planetary Data System (PDS)
B) Galactic Cloud Archive
C) Space Cloud Storage
D) Universal Data Vault

19. Data science models predicting the orbital trajectories of Near-Earth Objects are used to assess the risk of what event?

A) Asteroid impacts
B) Solar flares
C) Black hole creation
D) Supernova explosions

20. Through what wave medium does the Hubble Space Telescope send its raw binary data back toward Earth relay satellites?

A) Radio waves
B) Sound waves
C) Infrared light beam
D) Laser cables

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