

SPACE SCIENCE

1. What does the number of impact craters per unit area tell us about the surface of a planet or moon?
 - (1) The size of the moon or planet.
 - (2) The numbers of years that have passed since the last resurfacing by a lava flow.
 - (3) The density of the material that makes up the surface.
 - (4) Whether the planet is located near plane of the solar system.
2. If we compare several objects at the same temperature, all glowing because they are hot, the one that emits the most light from each unit area of surface will also
 - (1) appear reddest.
 - (2) absorb light hitting it most efficiently.
 - (3) appear faintest.
 - (4) appear bluest.
3. The planets all go around the Sun in the same direction, and most also spin on their axis in that same sense. This is due to
 - (1) the conservation of energy.
 - (2) the fact that light always travels at the same speed.
 - (3) no special reason... the planets just happen to do that.
 - (4) the conservation of angular momentum.
4. What theory is the current favorite for the origin of the Moon?
 - (1) It was formed in an orbit much closer to the Sun, and then captured by the Earth's gravitational field.
 - (2) It was expelled from the Earth by centrifugal force, at a time when the Earth was molten and rotating very rapidly.
 - (3) It and the Earth formed side-by-side at the same time.
 - (4) It formed from the remnants of a collision between Earth and another large body.
5. Why are meteorites so important?
 - (1) They can be analyzed to tell us about the initial chemical composition of the solar system.
 - (2) They come in on elongated orbits reaching to the edge of the Sun's sphere of gravitational influence.
 - (3) They may have been responsible for depositing much of the atmosphere onto the Earth..
 - (4) First two answers are correct.
6. Which is the best description of the process of formation of the planets?
 - (1) Condensed as very large bodies in the first step, which on subsequent meteor impacts broke up into today's planets.
 - (2) Condensed in nearly their finished form directly from the solar nebula, in one step.
 - (3) Nothing is known about how the planets formed.
 - (4) The initial gas condensed into small bodies called planetesimals, which then coalesced into larger and larger bodies.
7. Why doesn't the material in Saturn's inner rings eventually clump together into just a few large moons?
 - (1) Because the Great Red Spot is a storm larger than the diameter of the Earth.
 - (2) It will eventually happen, but it is a very slow process and there hasn't been enough time yet since Saturn was formed.
 - (3) Because the difference in the orbital velocities at different distances from Saturn tears apart any bodies that try to form.
 - (4) Because the rings are so thin... only one km thick.

8. In the Runaway Greenhouse Effect, why is it that light from the Sun can heat a planet, but the planet cannot cool off by re-radiating that energy back out to space?

- (1) The planet acts as a black body that only absorbs light; it does not emit light.
- (2) The sunlight directly heats the cloud layer, which then conducts the heat to the surface.
- (3) The surface heats up from volcanic activity.
- (4) Visible light from the Sun can pass through the CO_2 in the atmosphere and heat the surface, but the infrared light re-radiated by the planet is trapped by the CO_2 .

9. Why are there two high tides per day on Earth?

- (1) Because the Earth goes around the Moon twice per day.
- (2) Because the Moon goes around the Earth twice per day.
- (3) Because the Moon's gravitational pull sets up a wave that is sometimes on one side of the Earth and sometimes on the other side.
- (4) The Moon's gravity pulls most strongly on water on the near side of Earth, least strongly on water on the far side, and a medium amount on the solid bulk of the Earth.

10. What is the source of the best evidence favoring the past existence of life on Mars?

- (1) Analysis of samples of ice from Antarctica.
- (2) Observations from Earth of canal-like structures.
- (3) The careful chemical analysis made by the Viking landers.
- (4) Rocks blown off the Martian surface by meteorite impacts.

11. The different group of stars is known as

- (1) Constellations
- (2) Celestial bodies
- (3) Asteroids
- (4) Comet

12. Which of the following factors explain why the Earth can support lives?

- (i) It has air
- (ii) It has water
- (iii) It has a large surface
- (iv) It has suitable temperature

- (1) (i) and (iii)
- (2) (ii) and (iv)
- (3) (i), (ii) and (iv)
- (4) All of the above

13. Which of the following statements about the Moon are true?

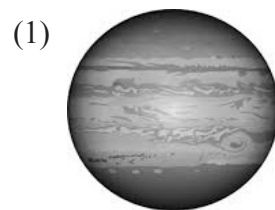
- (i) The Moon is the Earth's natural satellite
- (ii) We can see a full Moon every night
- (iii) There is no oxygen to support life on Moon
- (iv) The Moon is twice the size of the Earth

- (1) (i) and (iii)
- (2) (ii) and (iv)
- (3) (i), (ii) and (iii)
- (4) (ii), (iii) and (iv)

14. Side of Earth which faces Sun have

- (1) summer season
- (2) day
- (3) night
- (4) winter season

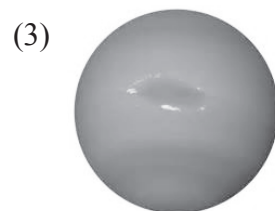
15. The largest circular storm in our solar system is on the surface of which of the following planets?



Jupiter



Venus



Uranus

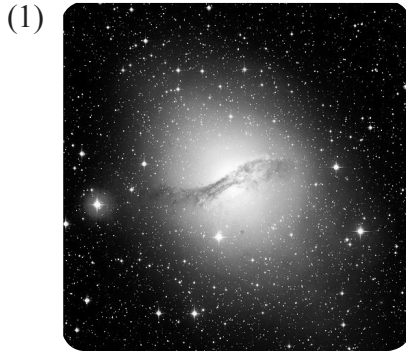


Earth

16. The biggest asteroid known is

- (1) Vesta
- (2) Icarus
- (3) Ceres
- (4) Eros

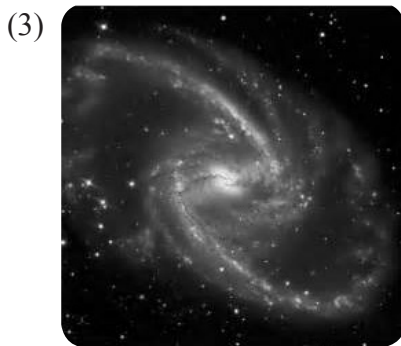
17. The Andromeda Galaxy is which of the following types of galaxies?



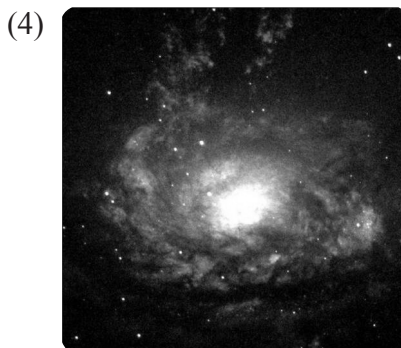
Elliptical



Spiral



Barred-spiral

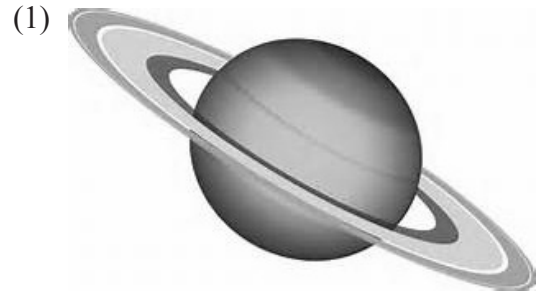


Irregular

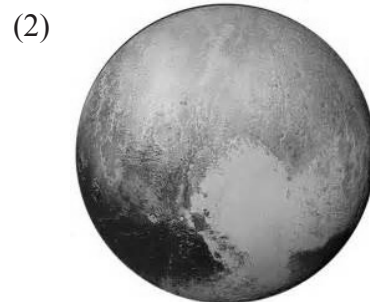
18. The largest moon in our solar system has an atmosphere that is denser than the atmosphere of Mars. The name of this moon is

- (1) Titan
- (2) Ganymede
- (3) Triton
- (4) Io

19. On which of the following planets would the SUN rise in the west?



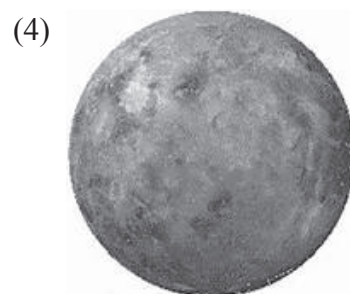
Saturn



Pluto



Mercury



Venus

20. The period from one full moon to the next is

- (1) 30.3 days
- (2) 30 days
- (3) 29.5 days
- (4) 28 days

21. Beads of light visible around the rim of the moon at the beginning and end of a total solar eclipse are called

- (1) Lunar Beads
- (2) Solar Beads
- (3) Baily's Beads
- (4) Rim Beads

22. Name the astronomer who discovered that Mars orbits the Sun in an elliptical orbit.

- (1) Kepler
- (2) Newton
- (3) Copernicus
- (4) All of these

23. Neptune is closest in size to which planet?

(1)



Mars

(2)



Mercury

(3)



Uranus

(4)



Neptune

24. In the Milky Way there are approximately

- (1) 2 million stars
- (2) 100 million stars
- (3) 400 million stars
- (4) 200 billion stars

25. How long is a comet's tail?

- (1) Hundreds of miles long
- (2) Thousands of miles long
- (3) Millions of miles long
- (4) Billions of miles long

INTERACTIVE SECTION

26. What is the name of the star closest to our sun?

- (1) Polaris
- (2) Proxima Centauri
- (3) Rigel
- (4) Mizor

27. Lunar eclipse occurs on

(1)



New moon

(2)



Full moon

(3)



Half moon

(4)



Quarter moon

Use these constellations to answer the next two questions (Q. 28 and Q. 29).



28. Which constellation is located between star “A” and “B”?

- (1) Pegasus
- (2) Cassiopeia
- (3) Big Dipper
- (4) Orion

29. What star is “D”?

- (1) Antares
- (2) Betelgeuse
- (3) Polaris (North Star)
- (4) Sirius (Dog Star)

30. The first lunar orbiter of China

- (1) Chang’e-1
- (2) Chang’eQ
- (3) Chang’ X
- (4) None of these

31. The first successful moon mission of India

- (1) Chandrayan 1
- (2) Chandrayan A
- (3) Rohini
- (4) None of these

32. _____ was the first to realise that the earth was round.

- (1) Aristotle
- (2) Galileo
- (3) Ptolemy
- (4) Heraclitus

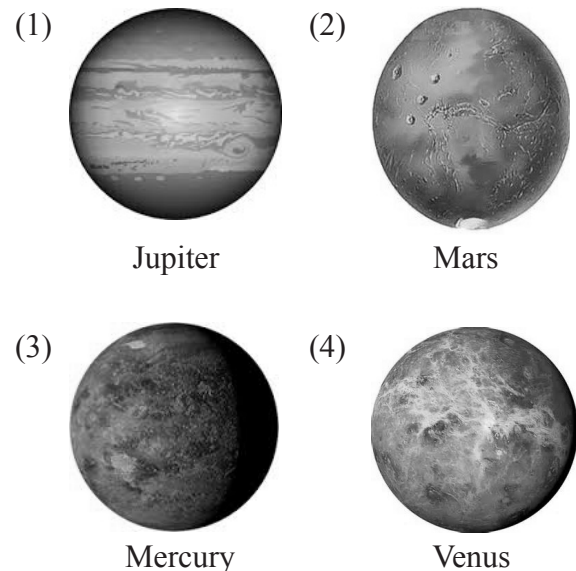
33. NASA’s Deep Impact space mission was employed to take detailed pictures of which comet nucleus?

- (1) Halley’s Comet
- (2) Hale-Bopp
- (3) Hyakutake
- (4) Tempel 1

34. We can see a black hole through a _____ telescope.

- (1) Galilean
- (2) Normal
- (3) Radio
- (4) Gravity

35. Which of the following planets has a lesser rotation time than the Earth?



Jupiter

Mars

Mercury

Venus

36. 'New Horizons' spacecraft was launched by NASA to study which of the following planet?

(1)



Mars

(2)



Pluto

(3)



Jupiter

(4)



Mercury

37. Brightest star as seen from the Earth

- (1) Rigel Kentaurus
- (2) Dog Star (Sirius)
- (3) Betelgeux
- (4) Eta Carinae

38. Satellite farthest from the parent planet

- (1) Hyperion
- (2) Titan
- (3) Ganymede
- (4) Sinope

39. "Saptarishi" is the Indian name of which Constellation?

- (1) Ursa Major
- (2) Ursa Minor
- (3) Orion
- (4) Draco

40. Which of the following is not a dwarf planet?

- (1) Ceres
- (2) Haumea
- (3) Makemake
- (4) Europa



END OF THE EXAM