

8th Science Lesson 17 Questions in English**17] Universe And Space Science**

1. Which of these studies is known as Astronomy?

- a) Stars and planets
- b) Composition of Stars and planets.
- c) Motions and positions of planets and stars
- d) All the above**

Explanation

The science, which deals with the study of stars, planets and their motions, their positions and compositions, is known as astronomy.

2. Which of the following is not a celestial object?

- a) The Sun
- b) Asteroids
- c) Volcanoes**
- d) Comets

Explanation

The stars, the planets, the Moon and many other objects like asteroids and comets in the sky are called celestial objects.

3. Choose the Incorrect sentences.

- i) All the stars are held together by the force of attraction of Sun.
- ii) The Sun belongs to the Milky Way galaxy.
- iii) The Sun and other celestial bodies revolving around it form the solar system.

- a) i only**
- b) ii only
- c) iii only
- d) All the above

Explanation

The Sun and the celestial bodies revolving around it form the solar system. A collection of billions of stars, held together by mutual attraction, is called 'Galaxy'. Our Sun belongs to a galaxy called 'Milky Way'.

4. What is the main objective of the space research programs of the Earth?

- a) Identifying the layers of earth.
- b) To know about the celestial bodies revolving around the earth.
- c) To understand the earth and its climate and weather conditions.**
- d) To understand the properties of the galaxy.

Explanation

Space research provides information to understand the environment of the Earth and the changing climate and weather on Earth. Exploring the space will help us to answer many of the challenges we are facing these days.

5. Assertion (A): Rockets are used to launch space probes to explore the planets in the solar system.

Reasoning(R): The Space based telescopes are also launched by the rockets to explore Universe.

- a) Both A and R is True and R is the correct explanation of A.
b) Both A and R is True but R is not the correct explanation of A.
c) A is True but R is False.
d) Both A and R is False.

Explanation

Discovery of rockets has opened a small portion of the universe to us. Rockets help us to launch space probes to explore the planets in the solar system. They also help us to launch space-based telescopes to explore the universe.

6. Choose the correct statements.

- i) The Chinese invented the rockets which had gun powders in it.
ii) The old age rockets were called as fire arrows used to defeat the Mongol army.
iii) The Middle East and Europe countries adopted the rocket making and used as weapons.
a) i only
b) ii only
c) iii only
d) All the above

Explanation

Rockets were invented in China, more than 800 years ago. The first rockets were a cardboard tube packed with gunpowder. They were called fire arrows. In 1232 AD the Chinese used these 'fire arrows' to defeat the invading Mongol army. The knowledge of making rockets soon spread to the Middle East and Europe, where they were used as weapons.

7. How many major parts are there in a rocket?

- a) 5
b) 4
c) 3
d) 10

Explanation

A rocket is a space vehicle with a very powerful engine designed to carry people or equipment beyond Earth and out into space. There are four major parts or systems in a rocket. They are Structural system, Payload system, Guidance system and Propulsion system.

8. Which of this material is used to make the structural system of a rocket?

- a) Tin
- b) Aluminium**
- c) Steel
- d) Lead

Explanation

The structural system is the frame that covers the rocket. It is made up of very strong but lightweight materials like titanium or aluminum.

9. What is the purpose of fins attached to the structural frame of the rockets?

- a) Stability**
- b) Enhancing the structure
- c) Temperature control
- d) Pressure balance

Explanation

Fins are attached to some rockets at the bottom of the frame to provide stability during the flight.

10. Name the object that is carried by the satellite to the orbit?

- a) Resonators
- b) Transmitters
- c) Payload**
- d) Data

Explanation

Payload is the object that the satellite is carrying into the orbit. Payload depends on the rocket's mission.

11. State the usages of satellites?

- a) Weather monitoring
- b) Planetary explorations
- c) Communications
- d) All the above**

Explanation

The rockets are modified to launch satellites with a wide range of missions like communications, weather monitoring, spying, planetary exploration and as observatories. Special rockets are also developed to launch people into the Earth's orbit and onto the surface of the Moon.

12. Which of the following is not included in the guidance system of a rocket?

- a) Sensors
- b) Magnetic Compass**
- c) On-board computers

d) Radars

Explanation

Guidance system guides the rocket in its path. It may include sensors, on-board computers, radars, and communication equipment's.

13. Which of the system occupies a major space in a rocket?

a) Structural system

b) Guidance system

c) Propulsion system

d) Payload system

Explanation

Propulsion system: It takes up most of the space in a rocket. It consists of fuel (propellant) tanks, pumps and a combustion chamber.

14. Assertion (A): Two major types of propulsion systems are used in the rockets.

Reasoning(R): Liquid and Solid propulsion system are the types of propulsion systems.

a) Both A and R is True and R is the correct explanation of A.

b) Both A and R is True but R is not the correct explanation of A.

c) A is True but R is False.

d) Both A and R is False.

Explanation

There are two main types of propulsion systems. They are: liquid propulsion system and solid propulsion system.

15. Choose the Incorrect statements.

i) The Propellant is a mixture of a fuel and an oxidizer.

ii) Propellant undergoes combustion to produce pressurized gases to move the rocket against the gravity.

iii) The propellants may be in the form of gas too.

a) i only

b) ii only

c) iii only

d) None of the above

Explanation

A propellant is a chemical substance that can undergo combustion to produce pressurized gases whose energy is utilized to move a rocket against the gravitational force of attraction. It is a mixture, which contains a fuel that burns and an oxidizer, which supplies the oxygen necessary for the burning (combustion) of the fuel. The propellants may be in the form of a solid or liquid.

16. Which of the following is not an oxidizer?

- a) Hydrogen peroxide
- b) Ethyl alcohol**
- c) Fuming nitric acid
- d) Ozone

Explanation

In liquid propellants fuel and oxidizers are combined in a combustion chamber where they burn and come out from the base of the rocket with a great force. Liquid hydrogen, hydrazine and ethyl alcohol are the liquid fuels. Some of the oxidizers are oxygen, ozone, hydrogen peroxide and fuming nitric acid.

17. Choose the correct statements.

- i) The solid rocket propellants have the combined fuel and oxidizer compounds.
- ii) The Combustion of solid propellants can be interrupted after the ignition.

- a) i only**
- b) ii only
- c) Both i and ii
- d) Neither i nor ii

Explanation

In solid rocket propellants fuel and oxidizer compounds are already combined. When they are ignited they burn and produce heat energy. Combustion of solid propellants cannot be stopped once it is ignited.

18. Which is a solid fuel used in the rockets?

- a) Hydrazine
- b) Chlorate salts
- c) Poly butadiene**
- d) Copper sulphate

Explanation

Solid fuels used in rockets are polyurethanes and poly butadiene. Nitrate and chlorate salts are used as oxidizers.

19. Which of these is not true regarding the Cryogenic propellants?

- a) The fuel and the oxidizer are liquefied gas.
- b) Stored at a very low temperature.
- c) No need of an ignition system.
- d) Fuels undergo a combustion process and produce energy.**

Explanation

Cryogenic propellants: In this type of fuel, the fuel or oxidizer or both are liquefied gases and they are stored at a very low temperature. These fuels do not need any ignition system. They react on mixing and start their own flame.

20. Choose the correct order of a rocket movement.

- i) The clamps will be removed by remote control and rocket will move upwards.
- ii) When the upward thrust will be greater than the weight of the satellite.
- iii) Manned or unmanned satellites are placed at the top of the rocket.
- iv) The rocket fuel is burnt and it will produce an upward thrust.

a) iii, i, iv, ii

b) iii, iv, ii, i

c) ii, iv, iii, i

d) ii, i, iii, iv

Explanation

Manned or unmanned satellites will be placed at the top of the rocket. When the fuel in the rocket is burnt, it will produce an upward thrust. There will be a point at which the upward thrust will be greater than the weight of the satellite. At that point the clamp will be removed by remote control and the rocket will move upwards.

21. Which of this law is applied in the rocket movement?

a) Newton's Third law

b) Coulomb's Law

c) Pascal's Law

d) Hooke's Law

Explanation

According to Newton's third law, for every action there is an equal and opposite reaction. As the gas is released downward the rocket will move upward.

22. Choose the correct statements.

- i) A satellite must be raised to the desired height, correct speed and direction by the launching rocket.
- ii) High velocity to rockets at surface will burn them due to air friction.
- iii) Dual stage rockets are used to develop high velocity.
- iv) The rocket rises vertically to penetrate the lower denser part of the atmosphere.

a) i, ii, iv only

b) ii, iv only

c) ii, iii only

d) iv only

Explanation

To place a satellite in a particular orbit, a satellite must be raised to the desired height and given the correct speed and direction by the launching rocket. If this high velocity is given to the rocket at the surface of the Earth the rocket will be burnt due to air friction. Moreover, such high velocities cannot be developed by a single rocket. So, multistage rockets are used. To penetrate the dense

lower part of the atmosphere, initially the rocket rises vertically and then it is tilted by a guidance system.

23. Who was the first chairperson of ISRO?

- a) **Vikram Sarabhai**
- b) Homi J.Bhaba
- c) Satish Dhawan
- d) Rakesh Sharma

Explanation

Within few years after the independence India initiated space research activities. In 1969, Indian Space Research Organization (ISRO) was formed with the objective of developing space technology and its application for different needs of the nation. The Indian National Committee for Space Research (INCOSPAR) was founded in 1962 under Department of Atomic Energy (DAE) with Vikram Sarabhai as its chairperson which in 1969 became ISRO.

24. When did India launch its first satellite Aryabhata?

- a) 1969
- b) **1975**
- c) 1972
- d) 1978

Explanation

India is focusing on satellites for communication and remote sensing, space transportation systems and application programs. The first ever satellite Aryabhata was launched in 1975.

25. Who was the first Indian to enter the space?

- a) **Rakesh Sharma**
- b) Kalpana Chawala
- c) Sunitha Williams
- d) Satish Dhawan

Explanation

Rakesh Sharma, an Indian pilot from Punjab was selected as a 'Cosmonaut' in a joint space program between India and Soviet Russia and become the first Indian to enter into the space on 2nd April, 1984.

26. When ISRO launched the Chandrayaan-1 satellite?

- a) 2007
- b) 2005
- c) **2008**
- d) 2009

Explanation

Our country launched a satellite Chandrayaan-1 (meaning Moon vehicle) on 22nd October 2008 to study about the Moon. It was launched from Satish Dhawan Space Center in Sriharikota, Andhra Pradesh with the help of PSLV (Polar Satellite Launch Vehicle) rocket. It was put into the lunar orbit on 8th November 2008.

27. Which of these details of the moon were collected by the Chandrayaan-1 satellite?

- a) Chemical
- b) Mineralogical
- c) Geological
- d) All the above**

Explanation

The spacecraft of Chandrayaan-1 was orbiting around the Moon at a height of 100 km from the lunar surface. It collected the chemical, the mineralogical and the geological information about the Moon. This mission was a major boost for the Indian space programs and helped to develop its own technology to explore the Moon.

28. Choose the correct statements.

- i) Chandrayaan-1 was operated for 312 days and achieved most of its objectives.
 - ii) On 28th August 2009 the ISRO scientist lost the communication with Chandrayaan-1.
- a) i only
 - b) ii only
 - c) Both i and ii**
 - d) Neither i nor ii

Explanation

Chandrayaan-1 was operated for 312 days and achieved 95% of its objectives. The scientists lost their communication with the space craft on 28th August 2009. On the successful completion of all the major objectives, the mission was concluded.

29. What were the objectives of Chandrayaan-1 mission on the Moon?

- a) Water possibility
- b) Search for existence of Helium-3
- c) To make a 3-D atlas of Moon
- d) All the above**

Explanation

The following were the objectives of Chandrayaan – 1 mission.

- To find the possibility of water on the Moon.
- To find the elements of matter on the Moon.
- To search for the existence of Helium-3.
- To make a 3-dimensional atlas of the Moon.
- To study about the evolution of the solar system.

30. Choose the Incorrect statements.

- i) Kalam Sat is the world's smallest satellite weighing only 64 gram.
- ii) ISRO launched the Kalam Sat into the space on June 2017.
- a) i only
- b) ii only**
- c) Both i and ii
- d) Neither i nor ii

Explanation

Kalam Sat is the world's smallest satellite weighing only 64 gram. It was built by a team of high school students, led by Rifath Sharook, an 18 year old school student from 'Pallapatti' near Karur, Tamil Nadu. It was launched into the space on 22nd June 2017 by NASA.

31. Which of these are not true based on the exploration of Moon by Chandrayaan-1?

- a) The surface of the moon is partially molten till now.**
- b) Moon mostly consists of peaks and craters.
- c) Water molecules are present in the lunar soil.
- d) Large caves are found in lunar surfaces.

Explanation

Achievements of Chandrayaan-1: The discovery of presence of water molecules in the lunar soil, Chandrayaan-1 confirmed that the Moon was completely molten once. The acquired images of peaks and craters show that the Moon mostly consists of craters. Chandrayaan-1 has discovered large caves on the lunar surface that can act as human shelter on the Moon.

32. Which of these space craft landing sites were recorded by Chandrayaan-1?

- a) Apollo-8
- b) Apollo-12
- c) Apollo-15**
- d) Apollo-3

Explanation

Chandrayaan-1 has recorded images of the landing site of the US space-craft Apollo-15 and Apollo-11.

33. Which of these projects was handled by Dr.Mylsamy Annadurai?

- a) Chandrayaan-1
- b) Mangalyaan
- c) Chandrayaan-2
- d) All the above**

Explanation

Dr. Mysamy Annadurai was born on 2nd July 1958, at Kodhavadi, a small village near Pollachi in Coimbatore district. Annadurai is a leading technologist in the field of satellite system. He has served as the Project Director of Chandrayaan-1, Chandrayaan-2 and Mangalyaan. He has also made significant contributions to the cost effective design of Chandrayaan.

34. Which of this material existence were picked up by the Chandrayaan-1?

- a) Aluminium
- b) Magnesium
- c) Silicon
- d) All the above**

Explanation

Chandrayaan-1 has provided high-resolution spectral data on the mineralogy of the Moon. The existence of aluminium, magnesium and silicon were picked up by the X-ray camera. More than 40,000 images have been transmitted by the Chandrayaan-1 camera in 75 days. Chandrayaan-1 beamed back its first images of the Earth in its entirety.

35. Choose the correct statements.

- i) Mars orbiter mission was the manned mission to Mars by ISRO.
 - ii) Mangalyaan probe was launched by the GSLV rocket from Sriharikota.
- a) i only
 - b) ii only
 - c) Both i and ii
 - d) Neither i nor ii**

Explanation

After the successful launch of Chandrayaan-1, ISRO planned an unmanned mission to Mars (Mars Orbiter Mission) and launched a space probe (space vehicle) on 5th November 2013 to orbit Mars orbit. This probe was launched by the PSLV Rocket from Sriharikota, Andhra Pradesh.

36. Assertion (A): ISRO was the fourth space agency to reach Mars.

Reasoning(R): Mars orbiter mission was India's second interplanetary Mission.

- a) Both A and R is True and R is the correct explanation of A.
- b) Both A and R is True but R is not the correct explanation of A.
- c) A is True but R is False.**
- d) Both A and R is False.

Explanation

Mars Orbiter Mission is India's first interplanetary mission. By launching Mangalyaan, ISRO became the fourth space agency to reach Mars.

37. For how many days Mangalyaan was travelling in the Earth's orbit?

- a) One month**

- b) One day
- c) Fifteen days
- d) One year

Explanation

Mangalyaan probe traveled for about a month in Earth's orbit, and then it was moved to the orbit of Mars by a series of projections.

38. When Mangalyaan was placed in the mars-orbit?

- a) November 2013
- b) September 2014**
- c) August 2014
- d) July 2012

Explanation

Mangalyaan was successfully placed in the Mars-orbit on 24th September 2014. Mars Orbiter Mission successfully completed a period of 3 years in the Martian orbit and continues to work as expected. ISRO has released the scientific data received from the MOM in the past two years (up to September 2016).

39. What is the rank of the Mars according to its size in the Solar system?

- a) 4
- b) 3
- c) 2**
- d) 5

Explanation

Mars is the fourth planet from the Sun. It is the second smallest planet in the solar system.

40. Assertion (A): Mars is called as the Red planet due to its reddish color.

Reasoning(R): The iron oxides in the surface and the dusty atmosphere give the reddish color to Mars.

- a) Both A and R is True and R is the correct explanation of A.**
- b) Both A and R is True but R is not the correct explanation of A.
- c) A is True but R is False.
- d) Both A and R is False.

Explanation

Mars is called as the Red Planet because of its reddish color. Iron Oxide present in its surface and also in its dusty atmosphere gives the reddish color to that planet.

41. Choose the incorrect statements about the facts of Mars.

- i) The Earth and Mars have similar rotational period and seasonal cycles.
- ii) The Mars revolves around the Sun once in 387 days.

iii) Mars rotates about its own axis once in 24 hours and 37 minutes.

a) i only

b) ii only

c) iii only

d) None of the above

Explanation

Mars rotates about its own axis once in 24 hours 37 minutes. Mars revolves around the Sun once in 687 days. The rotational period and seasonal cycles of Mars are similar to that of the Earth. Astronomers are more curious in the exploration of Mars. So, they have sent many unmanned space crafts to study the planet's surface, climate, and geology.

42. Which of these are the objectives of Mangalyaan mission?

a) Developing the technology for interplanetary mission.

b) To study the constituents of Mart atmosphere.

c) Future possibility of human life and past existence of life on Mars.

d) All the above

Explanation

Objectives of Mangalyaan:

- To develop the technology required for interplanetary mission.
- To explore the surface of Mars.
- To study the constituents of the Martian atmosphere.
- To provide information about the future possibility of life and past existence of life on the planet.

43. Choose the correct statements.

i) India is the first nation in the world to reach Mars in its first attempt.

ii) India is the first Asian country to reach Mars.

a) i only

b) ii only

c) Both i and ii

d) Neither i nor ii

Explanation

India became the first Asian country to reach Mars and the first nation in the world to achieve this in the first attempt.

44. Which of these space agencies has not reached Mars before ISRO?

a) China

b) Soviet Space Program

c) NASA

d) European Space Agency

Explanation

Soviet Space Program, NASA, and European Space Agency are the three other agencies that reached Mars before ISRO.

45. What is the main aim of the Chandrayaan-2 mission?

- a) To identify the weather patterns of Moon.
- b) Explore the South Pole of the Moon.**
- c) Extracting the available minerals.
- d) Water formations of Moon.

Explanation

ISRO has currently launched a follow on mission to Chandrayaan-1 named as Chandrayaan-2, on 22nd July 2019. Chandrayaan 2 mission is highly complex mission compared to previous missions of ISRO. It brought together an Orbiter, Lander and Rover. It aims to explore South Pole of the Moon because the surface area of the South Pole remains in shadow much larger than that of North Pole.

46. What are the functions of an orbiter in Chandrayaan-2 mission?

- a) Revolves around the moon
- b) Communicating with the lander Vikram.
- c) Communicates with Indian Deep Space Network(ISDN)
- d) All the above**

Explanation

Orbiter: It revolves around the moon and it is capable of communicating with Indian Deep Space Network (ISDN) at Bylalu as well as Vikram Lander.

47. Who is known as the father of Indian Space program?

- a) Dr. Vikram Sarabhai**
- b) Rakesh Sharma
- c) Dr. A.P.J. Abdul Kalam
- d) Satish Dhawan

Explanation

Lander: It is named as Vikram in the memory of Dr. Vikram A. Sarabhai, the father of Indian space program.

48. Choose the correct statements.

- i) Pragyan is a six wheeled robotic vehicle used as a rover in Chandrayaan-2 program.
 - ii) The lander Vikram lost its communication with the ground station in the final stage of the Chandrayaan-2 mission.
 - iii) The Orbiter of the Chnadrayaan-2 continues to work successfully till now.
- a) i only
 - b) ii only**

- c) iii only
- d) All the above

Explanation

Rover: It is a 6 wheeled robotic vehicle named as 'Pragyan' (Sanskrit word) that means wisdom. Chandrayaan-2 was successfully inserted into the lunar orbit on 20th August 2019. In the final stage of the mission, just 2.1 km above the lunar surface, Lander 'Vikram' lost its communication with the ground station on 7th September 2019. But the Orbiter continues its work successfully.

49. Which of the following is the native place of Dr. Kailasa vadivoo Sivan?

- a) Coimbatore
- b) Pollachi
- c) Kanyakumari
- d) Rameshwaram

Explanation

Dr. Kailasa vadivoo Sivan is the chairperson of the Indian Space Research Organization (ISRO). He was born in Sarakkalvilai in Kanyakumari district of Tamil Nadu. Sivan graduated with a bachelor's degree in Aeronautical Engineering from Madras Institute of Technology in 1980.

50. Who is popularly known as the Rocket Man of Indian space programs?

- a) Dr. Kailasa vadivoo Sivan
- b) M.G.K.Menon
- c) Rakesh Sharma
- d) A.S. Kiran Kumar

Explanation

Sivan is popularly known as the 'Rocket Man' for his significant contribution to the development of cryogenic engines for India's space programs. The ability of 'ISRO' to send 104 satellites in a single mission is a great example of his expertise.

51. Which of these facts of the Moon are not true?

- a) The Moon is the only natural satellite of the Earth.
- b) The Mean distance between the Moon and the Earth is about 3, 84,400km.
- c) The Moon has layers of atmosphere as the Earth.
- d) The Moon reflects the sunlight as it does not have its own light.

Explanation

The Moon is the only natural satellite of the Earth. It is at a mean distance of about 3, 84,400 km from the Earth. Its diameter is 3,474 km. It has no atmosphere of its own. It doesn't have its own light, but it reflects the sunlight.

52. Assertion (A): The Earth always faces one side of the Moon.

Reasoning(R): The Time period of revolution of Earth and the time of rotation of Moon are equal.

- a) Both A and R is True and R is the correct explanation of A.
- b) Both A and R is True but R is not the correct explanation of A.
- c) A is True but R is False.
- d) Both A and R is False.

Explanation

The time period of rotation of the Moon about its own axis is equal to the time period of revolution around the Earth. That's why we are always seeing its one side alone.

53. Which is the Headquarters of NASA?

- a) **Washington**
- b) New York
- c) California
- d) Ohio

Explanation

NASA is the most popular space agency whose headquarters is located at Washington, USA. It was established on 1st October 1958. It has 10 field centers, which provide a major role in the execution of NASA's work.

54. Choose the correct statements.

- i) The International Space Station is fully owned by NASA.
 - ii) NASA has landed rovers on Jupiter.
 - iii) NASA space programs explored Saturn and Mercury.
- a) i only
 - b) ii only
 - c) **iii only**
 - d) All the above

Explanation

NASA is supporting International Space Station which is an international collaborative work on space research. It has landed rovers on Mars analyzed the atmosphere of Jupiter, explored Saturn and Mercury.

55. Which of these space programs is not involved with NASA?

- a) Mercury
- b) Gemini
- c) **MOM**
- d) Apollo

Explanation

The Mercury, Gemini and Apollo programs helped NASA learn about flying in space. NASA's robotic space probes have visited every planet in the solar system.

56. What are the significant contributions of NASA technology and its satellites?

- a) Revealed valuable data's of Earth.
- b) Better understanding of global weather patterns.
- c) Technology for various daily usage devices.
- d) All the above**

Explanation

Satellites launched by NASA have revealed a wealth of data about Earth, resulting in valuable information such as a better understanding of weather patterns. NASA technology has contributed to make many items used in everyday life, from smoke detectors to medical tests.

57. Choose the incorrect statements.

- i) Apollo missions are the most popular missions of NASA to land on the Mars.
- ii) Apollo missions consist of total 17 missions.
- iii) Apollo-8 and Apollo-11 are the most remarkable missions of NASA.

a) i only

b) ii only

c) iii only

d) None of the above

Explanation

Apollo Missions are the most popular missions of NASA. These missions made American Astronauts to land on the Moon. It consists of totally 17 missions. Among them Apollo -8 and Apollo-11 are more remarkable.

58. When did Apollo-11 landed on the Moon?

a) 1969

b) 1958

c) 1972

d) 1968

Explanation

Apollo-11 was the first 'Man Landing Mission' to the moon. It landed on the Moon on 20th July 1969. Neil Armstrong was the first man to walk on the surface of the Moon.

59. Which was the first manned mission to the Moon?

a) Apollo-11

b) Apollo-15

c) Apollo-8

d) Apollo-3

Explanation

Apollo-8 was the first manned mission to go to the Moon.

60. Who were involved in the crew of apollo-11, man landing mission of the moon?

- a) Buzz Aldrin
- b) Michael Collins
- c) Neil Armstrong
- d) **All the above**

Explanation

The members present in the crew during the Man Landing Mission were Neil Armstrong, Buzz Aldrin and Michael Collins.

61. Choose the correct statements.

- i) NASA and ISRO made an agreement to launch NISAR satellite.
 - ii) NASA has made some collaboration with ISRO in the MARS exploration missions too.
- a) i only
 - b) ii only
 - c) **Both i and ii**
 - d) Neither i nor ii

Explanation

NASA made an agreement to work with ISRO to launch the NISAR Satellite (NASAISRO Synthetic Aperture Radar) and Mars Exploration Missions.

62. In which year Kalpana Chawala joined NASA?

- a) **1988**
- b) 1985
- c) 1962
- d) 1982

Explanation

Kalpana Chawala was born on 17th March 1962 in Karnal, Punjab. In 1988, she joined the NASA.

63. Assertion (A): Kalpana Chawala is the first Indian women astronaut to go to space.

Reasoning(R): In 1997 Kalpana took part in the Colombia Shuttle Mission.

- a) **Both A and R is True and R is the correct explanation of A.**
- b) Both A and R is True but R is not the correct explanation of A.
- c) A is True but R is False.
- d) Both A and R is False.

Explanation

Kalpana Chawala was selected to take part in the Colombia Shuttle Mission in 1997 and she became the first Indian women astronaut to go to space. Kalpana Chawla travelled over 10.4 million miles in 252 orbits of the earth, logging more than 372 hours in space.

64. Choose the correct statements.

- i) Sunitha Williams was born on 19th September 1965 in Punjab.
 - ii) In August 1998 Sunitha Williams started her career as an astronaut.
- a) i only
 - b) ii only**
 - c) Both i and ii
 - d) Neither i nor ii

Explanation

Sunitha Williams was born on 19th September 1965 in USA. She started her career as an astronaut in August 1998.

65. Which of these are not true about Sunitha Williams?

- a) Sunitha Williams made two trips to the International Space station.
- b) Sunitha Williams is the first women astronaut to go to space.**
- c) Sunitha set a record of longest spacewalk time by a female astronaut in 2012.
- d) Sunitha Williams is one of the crew of NASA's manned Mars Mission.

Explanation

Sunitha Williams made two trips to the International Space Station. She set a record of the longest space walking time by a female astronaut in 2012, with a total spacewalk of 50 hour and 40 minute (7 space walks). She is one of the crew of NASA's Manned Mars Mission.